

OM-1579 133 566V

September 2001

Processes



MIG (GMAW) Welding

Flux Cored (FCAW) Welding
(Gas- and Self-Shielding)

Submerged (SAW) Welding

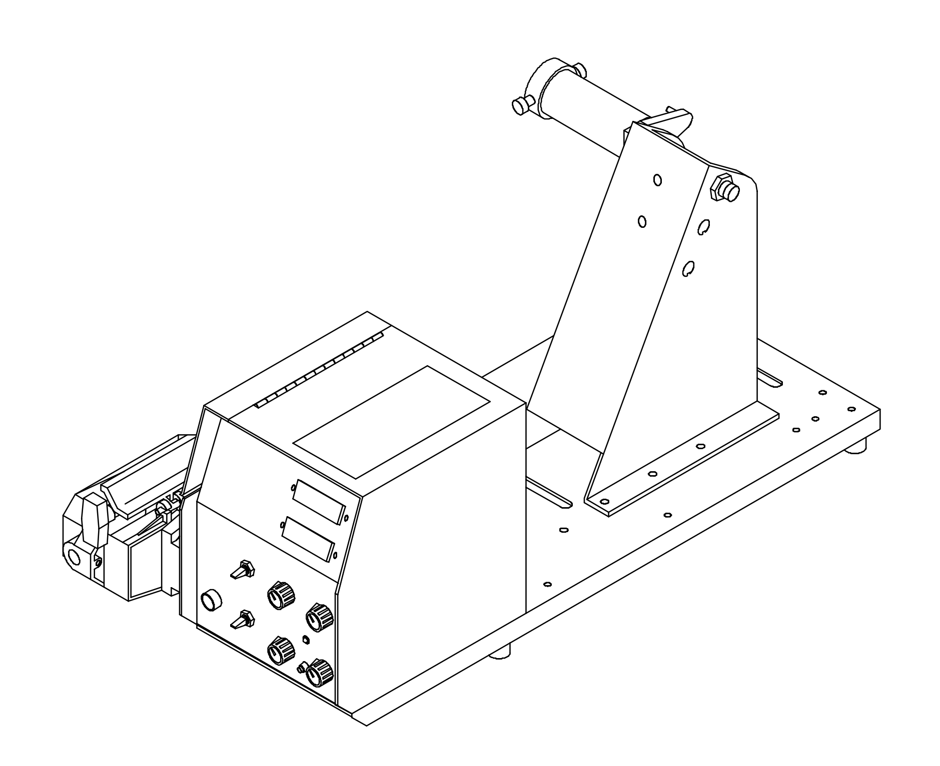
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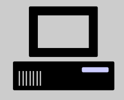

Wire Feeder

(Use with CV Power Sources)

S-62 & S-64



OWNER'S MANUAL



Visit our website at

www.MillerWelds.com

From Miller to You

Thank you and *congratulations* on choosing Miller. Now you can get the job done and get it done right. We know you don't have time to do it any other way.



That's why when Niels Miller first started building arc welders in 1929, he made sure his products offered long-lasting value and superior quality. Like you, his customers couldn't afford anything less. Miller products had to be more than the best they could be. They had to be the best you could buy.

Today, the people that build and sell Miller products continue the tradition. They're just as committed to providing equipment and service that meets the high standards of quality and value established in 1929.

This Owner's Manual is designed to help you get the most out of your Miller products. Please take time to read the Safety precautions. They will help you protect yourself against potential hazards on the worksite. We've made installation and operation quick and easy. With Miller you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is. The parts list will then help you to decide which exact part you may need to fix the problem. Warranty and service information for your particular model are also provided.



Miller is the first welding equipment manufacturer in the U.S.A. to be registered to the ISO 9001 Quality System Standard.

Miller Electric manufactures a full line of welders and welding related equipment. For information on other quality Miller products, contact your local Miller distributor to receive the latest full line catalog or individual catalog sheets. **To locate your nearest distributor or service agency call 1-800-4-A-Miller, or visit us at www.MillerWelds.com on the web.**





Working as hard as you do – every power source from Miller is backed by the most hassle-free warranty in the business.

Miller offers a Technical Manual which provides more detailed service and parts information for your unit. To obtain a Technical Manual, contact your local distributor. Your distributor can also supply you with Welding Process Manuals such as SMAW, GTAW, GMAW, and GMAW-P.



TABLE OF CONTENTS

⚠ WARNING

This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

Declaration of Conformity for European Community (CE) Products

Note ☞ *This information is provided for units with CE certification (see rating label on unit).*

Manufacturer's Name: Miller Electric Mfg. Co.

Manufacturer's Address: 1635 W. Spencer Street
Appleton, WI 54914 USA

Declares that the product: **S-62 & S-64**

conforms to the following Directives and Standards:

Directives

Low Voltage Directive: 73/23/EEC

Electromagnetic Compatibility (EMC) Directive: 89/336/EEC

Machinery Directives: 89/392/EEC, 91/368/EEC, 93/C 133/04, 93/68/EEC

Standards

Arc Welding Equipment Part I: Welding Power Sources: IEC 60974-1
(September 1998 – Second Edition)

Arc Welding Equipment: Wirefeed Systems: IEC 974-5
(September 1997 – Draft Revision)

Degrees of Protection Provided By Enclosures (IP Code): IEC 529
(November 1989 – First Edition)

Insulation Coordination For Equipment With Low-Voltage Systems:
Part I: Principles, Requirements and Tests: IEC 664-1
(October 1992 – First Edition)

Electromagnetic Compatibility, (EMC): EN 50199
(August 1995)

European Contact: Mr. Danilo Fedolfi, Managing Director
MILLER Europe S.P.A.
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20098 San Giuliano
Milanese, Italy

Telephone: 39(02)98290-1
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SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

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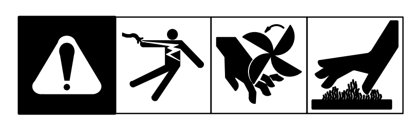
1-1. Symbol Usage



Means Warning! Watch Out! There are possible hazards with this procedure! The possible hazards are shown in the adjoining symbols.

▲ **Marks a special safety message.**

☞ *Means "Note"; not safety related.*



This group of symbols means Warning! Watch Out! possible ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards.

1-2. Arc Welding Hazards

▲ **The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in Section 1-4. Read and follow all Safety Standards.**

▲ **Only qualified persons should install, operate, maintain, and repair this unit.**

▲ **During operation, keep everybody, especially children, away.**



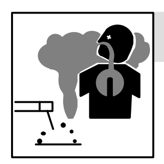
ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.
- Use AC output ONLY if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.
- Always verify the supply ground – check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- When making input connections, attach proper grounding conductor first – double-check connections.
- Frequently inspect input power cord for damage or bare wiring – replace cord immediately if damaged – bare wiring can kill.
- Turn off all equipment when not in use.
- Do not use worn, damaged, undersized, or poorly spliced cables.
- Do not drape cables over your body.
- If earth grounding of the workpiece is required, ground it directly with a separate cable.
- Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal.

SIGNIFICANT DC VOLTAGE exists after removal of input power on inverters.

- Turn Off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.



FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

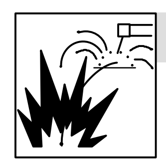
- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
- If ventilation is poor, use an approved air-supplied respirator.
- Read the Material Safety Data Sheets (MSDSs) and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watchperson nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and if necessary, while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.



ARC RAYS can burn eyes and skin.

Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

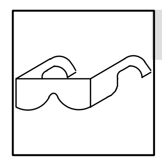
- Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
- Wear protective clothing made from durable, flame-resistant material (leather and wool) and foot protection.



WELDING can cause fire or explosion.

Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding.

- Protect yourself and others from flying sparks and hot metal.
- Do not weld where flying sparks can strike flammable material.
- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not weld on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to AWS F4.1 (see Safety Standards).
- Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock and fire hazards.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.



FLYING METAL can injure eyes.

- Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag.
- Wear approved safety glasses with side shields even under your welding helmet.



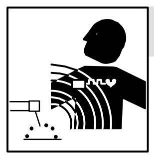
BUILDUP OF GAS can injure or kill.

- Shut off shielding gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.



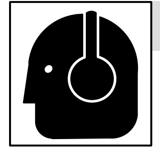
HOT PARTS can cause severe burns.

- Do not touch hot parts bare handed.
- Allow cooling period before working on gun or torch.



MAGNETIC FIELDS can affect pacemakers.

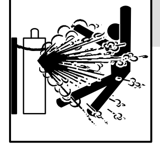
- Pacemaker wearers keep away.
- Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.



NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.

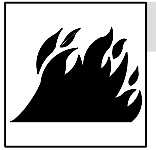


CYLINDERS can explode if damaged.

Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

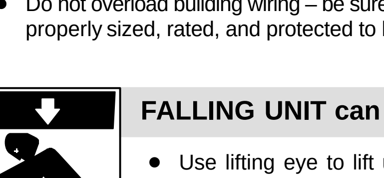
- Protect compressed gas cylinders from excessive heat, mechanical shocks, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder – explosion will result.
- Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Read and follow instructions on compressed gas cylinders, associated equipment, and CGA publication P-1 listed in Safety Standards.

1-3. Additional Symbols For Installation, Operation, And Maintenance



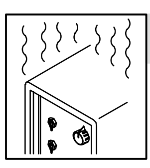
FIRE OR EXPLOSION hazard.

- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring – be sure power supply system is properly sized, rated, and protected to handle this unit.



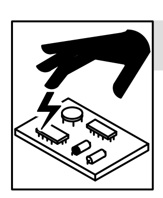
FALLING UNIT can cause injury.

- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.



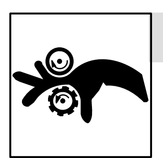
OVERUSE can cause OVERHEATING

- Allow cooling period; follow rated duty cycle.
- Reduce current or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit.



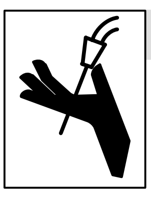
STATIC (ESD) can damage PC boards.

- Put on grounded wrist strap BEFORE handling boards or parts.
- Use proper static-proof bags and boxes to store, move, or ship PC boards.



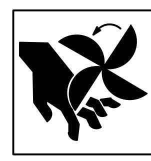
MOVING PARTS can cause injury.

- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.



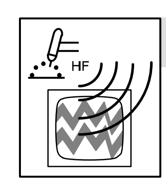
WELDING WIRE can cause injury.

- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part of the body, other people, or any metal when threading welding wire.



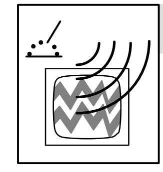
MOVING PARTS can cause injury.

- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.



H.F. RADIATION can cause interference.

- High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.



ARC WELDING can cause interference.

- Electromagnetic energy can interfere with sensitive electronic equipment such as computers and computer-driven equipment such as robots.
- Be sure all equipment in the welding area is electromagnetically compatible.
- To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
- Locate welding operation 100 meters from any sensitive electronic equipment.
- Be sure this welding machine is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

1-4. Principal Safety Standards

Safety in Welding and Cutting, ANSI Standard Z49.1, from American Welding Society, 550 N.W. LeJeune Rd, Miami FL 33126

Safety and Health Standards, OSHA 29 CFR 1910, from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Recommended Safe Practices for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances, American Welding Society Standard AWS F4.1, from American Welding Society, 550 N.W. LeJeune Rd, Miami, FL 33126

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202.

Code for Safety in Welding and Cutting, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3.

Safe Practices For Occupation And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 1430 Broadway, New York, NY 10018.

Cutting And Welding Processes, NFPA Standard 51B, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

1-5. EMF Information

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields

Welding current, as it flows through welding cables, will cause electromagnetic fields. There has been and still is some concern about such fields. However, after examining more than 500 studies spanning 17 years of research, a special blue ribbon committee of the National Research Council concluded that: "The body of evidence, in the committee's judgment, has not demonstrated that exposure to power-frequency electric and magnetic fields is a human-health hazard." However, studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

To reduce magnetic fields in the workplace, use the following procedures:

1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep welding power source and cables as far away from operator as practical.
5. Connect work clamp to workpiece as close to the weld as possible.

About Pacemakers:

Pacemaker wearers consult your doctor first. If cleared by your doctor, then following the above procedures is recommended.

SECTION 1 – CONSIGNES DE SECURITE – LIRE AVANT UTILISATION

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1-1. Signification des symboles



Signifie Mise en garde ! Soyez vigilant ! Cette procédure présente des risques de danger ! Ceux-ci sont identifiés par des symboles adjacents aux directives.

▲ **Identifie un message de sécurité particulier.**

☞ *Signifie NOTA ; n'est pas relatif à la sécurité.*

Ce groupe de symboles signifie Mise en garde ! Soyez vigilant ! Il y a des risques de danger reliés aux CHOCS ÉLECTRIQUES, aux PIÈCES EN MOUVEMENT et aux PIÈCES CHAUDES. Reportez-vous aux symboles et aux directives ci-dessous afin de connaître les mesures à prendre pour éviter tout danger.

1-2. Dangers relatifs au soudage à l'arc

▲ **Les symboles présentés ci-après sont utilisés tout au long du présent manuel pour attirer votre attention et identifier les risques de danger. Lorsque vous voyez un symbole, soyez vigilant et suivez les directives mentionnées afin d'éviter tout danger. Les consignes de sécurité présentées ci-après ne font que résumer l'information contenue dans les normes de sécurité énumérées à la section 1-4. Veuillez lire et respecter toutes ces normes de sécurité.**

▲ **L'installation, l'utilisation, l'entretien et les réparations ne doivent être confiés qu'à des personnes qualifiées.**

▲ **Au cours de l'utilisation, tenir toute personne à l'écart et plus particulièrement les enfants.**



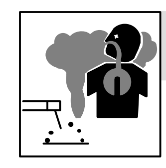
UN CHOC ÉLECTRIQUE peut tuer.

Un simple contact avec des pièces électriques peut provoquer une électrocution ou des blessures graves. L'électrode et le circuit de soudage sont sous tension dès que l'appareil est sur ON. Le circuit d'entrée et les circuits internes de l'appareil sont également sous tension à ce moment-là. En soudage semi-automatique ou automatique, le fil, le dévidoir, le logement des galets d'entraînement et les pièces métalliques en contact avec le fil de soudage sont sous tension. Des matériels mal installés ou mal mis à la terre présentent un danger.

- Ne jamais toucher les pièces électriques sous tension.
- Porter des gants et des vêtements de protection secs ne comportant pas de trous.
- S'isoler de la pièce et de la terre au moyen de tapis ou d'autres moyens isolants suffisamment grands pour empêcher le contact physique éventuel avec la pièce ou la terre.
- Ne pas se servir de source électrique àcourant électrique dans les zones humides, dans les endroits confinés ou là où on risque de tomber.
- Se servir d'une source électrique àcourant électrique UNIQUEMENT si le procédé de soudage le demande.
- Si l'utilisation d'une source électrique àcourant électrique s'avère nécessaire, se servir de la fonction de télécommande si l'appareil en est équipé.
- Couper l'alimentation ou arrêter le moteur avant de procéder à l'installation, à la réparation ou à l'entretien de l'appareil. Déverrouiller l'alimentation selon la norme OSHA 29 CFR 1910.147 (voir normes de sécurité).
- Installer et mettre à la terre correctement cet appareil conformément à son manuel d'utilisation et aux codes nationaux, provinciaux et municipaux.
- Toujours vérifier la terre du cordon d'alimentation – Vérifier et s'assurer que le fil de terre du cordon d'alimentation est bien raccordé à la borne de terre du sectionneur ou que la fiche du cordon est raccordée à une prise correctement mise à la terre.
- En effectuant les raccordements d'entrée fixer d'abord le conducteur de mise à la terre approprié et contre-vérifier les connexions.
- Vérifier fréquemment le cordon d'alimentation pour voir s'il n'est pas endommagé ou dénudé – remplacer le cordon immédiatement s'il est endommagé – un câble dénudé peut provoquer une électrocution.
- Mettre l'appareil hors tension quand on ne l'utilise pas.
- Ne pas utiliser des câbles usés, endommagés, de grosseur insuffisante ou mal épissés.
- Ne pas enrouler les câbles autour du corps.
- Si la pièce soudée doit être mise à la terre, le faire directement avec un câble distinct.
- Ne pas toucher l'électrode quand on est en contact avec la pièce, la terre ou une électrode provenant d'une autre machine.
- N'utiliser qu'un matériel en bon état. Réparer ou remplacer sur-le-champ les pièces endommagées. Entretenir l'appareil conformément à ce manuel.
- Porter un harnais de sécurité quand on travaille en hauteur.
- Maintenir solidement en place tous les panneaux et capots.
- Fixer le câble de retour de façon à obtenir un bon contact métal-métal avec la pièce à souder ou la table de travail, le plus près possible de la soudure.
- Isoler la pince de masse quand pas mis à la pièce pour éviter le contact avec tout objet métallique.

Il y a DU COURANT CONTINU IMPORTANT dans les convertisseurs après la suppression de l'alimentation électrique.

- Arrêter les convertisseurs, débrancher le courant électrique, et décharger les condensateurs d'alimentation selon les instructions indiquées dans la partie entretien avant de toucher les pièces.



LES FUMÉES ET LES GAZ peuvent être dangereux.

Le soudage génère des fumées et des gaz. Leur inhalation peut être dangereux pour votre santé.

- Eloigner votre tête des fumées. Ne pas respirer les fumées.
- A l'intérieur, ventiler la zone et/ou utiliser un échappement au niveau de l'arc pour l'évacuation des fumées et des gaz de soudage.
- Si la ventilation est insuffisante, utiliser un respirateur à alimentation d'air homologué.
- Lire les spécifications de sécurité des matériaux (MSDSs) et les instructions du fabricant concernant les métaux, les consommables, les revêtements, les nettoyants et les dégraisseurs.
- Travailler dans un espace fermé seulement s'il est bien ventilé ou en portant un respirateur à alimentation d'air. Demander toujours à un surveillant dûment formé de se tenir à proximité. Des fumées et des gaz de soudage peuvent déplacer l'air et abaisser le niveau d'oxygène provoquant des blessures ou des accidents mortels. S'assurer que l'air de respiration ne présente aucun danger.
- Ne pas souder dans des endroits situés à proximité d'opérations de dégraissage, de nettoyage ou de pulvérisation. La chaleur et les rayons de l'arc peuvent réagir en présence de vapeurs et former des gaz hautement toxiques et irritants.
- Ne pas souder des métaux munis d'un revêtement, tels que l'acier galvanisé, plaqué en plomb ou au cadmium à moins que le revêtement n'ait été enlevé dans la zone de soudure, que l'endroit soit bien ventilé, et si nécessaire, en portant un respirateur à alimentation d'air. Les revêtements et tous les métaux renfermant ces éléments peuvent dégager des fumées toxiques en cas de soudage.



LES RAYONS DE L'ARC peuvent provoquer des brûlures dans les yeux et sur la peau.

Le rayonnement de l'arc du procédé de soudage génère des rayons visibles et invisibles intenses (ultraviolets et infrarouges) susceptibles de provoquer des brûlures dans les yeux et sur la peau. Des étincelles sont projetées pendant le soudage.

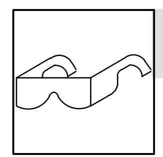
- Porter un casque de soudage muni d'un écran de filtre approprié pour protéger votre visage et vos yeux pendant le soudage ou pour regarder (voir ANSI Z49.1 et Z87.1 énuméré dans les normes de sécurité).
- Porter des protections approuvés pour les oreilles si le niveau sondre est trop élevé.
- Utiliser des écrans ou des barrières pour protéger des tiers de l'éclair et de l'éblouissement; demander aux autres personnes de ne pas regarder l'arc.
- Porter des vêtements de protection constitué dans une matière durable, résistant au feu (cuir ou laine) et une protection des pieds.



LE SOUDAGE peut provoquer un incendie ou une explosion.

Le soudage effectué sur des conteneurs fermés tels que des réservoirs, tambours ou des conduites peut provoquer leur éclatement. Des étincelles peuvent être projetées de l'arc de soudure. La projection d'étincelles, des pièces chaudes et des équipements chauds peut provoquer des incendies et des brûlures. Le contact accidentel de l'électrode avec des objets métalliques peut provoquer des étincelles, une explosion, un surchauffement ou un incendie. Avant de commencer le soudage, vérifier et s'assurer que l'endroit ne présente pas de danger.

- Se protéger et d'autres personnes de la projection d'étincelles et de métal chaud.
- Ne pas souder dans un endroit là où des étincelles peuvent tomber sur des substances inflammables.
- Déplacer toutes les substances inflammables à une distance de 10,7 m de l'arc de soudage. En cas d'impossibilité les recouvrir soigneusement avec des protections homologués.
- Des étincelles et des matériaux chauds du soudage peuvent facilement passer dans d'autres zones en traversant de petites fissures et des ouvertures.
- Surveiller tout déclenchement d'incendie et tenir un extincteur à proximité.
- Le soudage effectué sur un plafond, plancher, paroi ou séparation peut déclencher un incendie de l'autre côté.
- Ne pas effectuer le soudage sur des conteneurs fermés tels que des réservoirs, tambours, ou conduites, à moins qu'ils n'aient été préparés correctement conformément à AWS F4.1 (voir les normes de sécurité).
- Brancher le câble sur la pièce le plus près possible de la zone de soudage pour éviter le transport du courant sur une longue distance par des chemins inconnus éventuels en provoquant des risques d'électrocution et d'incendie.
- Ne pas utiliser le poste de soudage pour dégeler des conduites gelées.
- En cas de non utilisation, enlever la baguette d'électrode du porte-électrode ou couper le fil à la pointe de contact.
- Porter des vêtements de protection dépourvus d'huile tels que des gants en cuir, une chemise en matériau lourd, des pantalons sans revers, des chaussures hautes et un couvre chef.
- Avant de souder, retirer toute substance combustible de vos poches telles qu'un allumeur au butane ou des allumettes.



DES PARTICULES VOLANTES peuvent blesser les yeux.

- Le soudage, l'écaillement, le passage de la pièce à la brosse en fil de fer, et le meulage génèrent des étincelles et des particules métalliques volantes. Pendant la période de refroidissement des soudures, elles risquent de projeter du laitier.
- Porter des lunettes de sécurité avec écrans latéraux ou un écran facial.



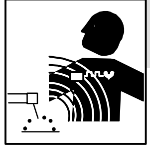
LES ACCUMULATIONS DE GAZ risquent de provoquer des blessures ou même la mort.

- Fermer l'alimentation du gaz protecteur en cas de non utilisation.
- Veiller toujours à bien aérer les espaces confinés ou se servir d'un respirateur d'adduction d'air homologué.



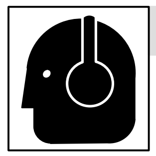
DES PIÈCES CHAUDES peuvent provoquer des brûlures graves.

- Ne pas toucher des parties chaudes à mains nues
- Prévoir une période de refroidissement avant d'utiliser le pistolet ou la torche.



LES CHAMPS MAGNÉTIQUES peuvent affecter les stimulateurs cardiaques.

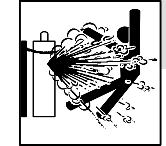
- Porteurs de stimulateur cardiaque, restez à distance.
- Les porteurs d'un stimulateur cardiaque doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de gougeage ou de soudage par points.



LE BRUIT peut affecter l'ouïe.

Le bruit des processus et des équipements peut affecter l'ouïe.

- Porter des protections approuvés pour les oreilles si le niveau sondre est trop élevé.

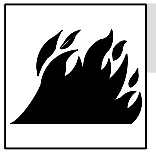


Si des BOUTEILLES sont endommagées, elles pourront exploser.

Des bouteilles de gaz protecteur contiennent du gaz sous haute pression. Si une bouteille est endommagée, elle peut exploser. Du fait que les bouteilles de gaz font normalement partie du procédé de soudage, les manipuler avec précaution.

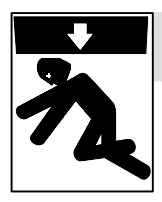
- Protéger les bouteilles de gaz comprimé d'une chaleur excessive, des chocs mécaniques, du laitier, des flammes ouvertes, des étincelles et des arcs.
- Placer les bouteilles debout en les fixant dans un support stationnaire ou dans un porte-bouteilles pour les empêcher de tomber ou de se renverser.
- Tenir les bouteilles éloignées des circuits de soudage ou autres circuits électriques.
- Ne jamais placer une torche de soudage sur une bouteille à gaz.
- Une électrode de soudage ne doit jamais entrer en contact avec une bouteille.
- Ne jamais souder une bouteille pressurisée – risque d'explosion.
- Utiliser seulement des bouteilles de gaz protecteur, régulateurs, tuyaux et raccords convenables pour cette application spécifique; les maintenir ainsi que les éléments associés en bon état.
- Ne pas tenir la tête en face de la sortie en ouvrant la soupape de la bouteille.
- Maintenir le chapeau de protection sur la soupape, sauf en cas d'utilisation ou de branchement de la bouteille.
- Lire et suivre les instructions concernant les bouteilles de gaz comprimé, les équipements associés et les publications P-1 CGA énumérées dans les normes de sécurité.

1-3. Dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance



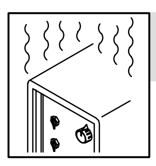
Risque D'INCENDIE OU D'EXPLOSION.

- Ne pas placer l'appareil sur, au-dessus ou à proximité de surfaces infllammables.
- Ne pas installer l'appareil à proximité de produits inflammables
- Ne pas surcharger l'installation électrique – s"assurer que l'alimentation est correctement dimensionné et protégé avant de mettre l'appareil en service.



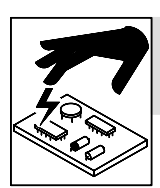
LA CHUTE DE L'APPAREIL peut blesser.

- Utiliser l'anneau de levage uniquement pour soulever l'appareil, NON PAS les chariot, les bouteilles de gaz ou tout autre accessoire.
- Utiliser un engin d'une capacité appropriée pour soulever l'appareil.
- En utilisant des fourches de levage pour déplacer l'unité, s'assurer que les fourches sont suffisamment longues pour dépasser du côté opposé de l'appareil.



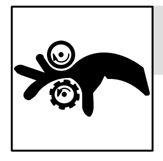
L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

- Prévoir une période de refroidissement, respecter le cycle opératoire nominal.
- Réduire le courant ou le cycle opératoire avant de recommancer le soudage.
- Ne pas obstruer les passages d'air du poste.



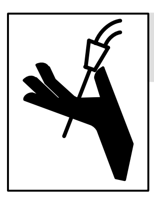
LES CHARGES ÉLECTROSTATIQUES peuvent endommager les circuits imprimés.

- Établir la connexion avec la barrette de terre avant de manipuler des cartes ou des pièces.
- Utiliser des pochettes et des boîtes antistatiques pour stocker, déplacer ou expédier des cartes de circuits imprimes.



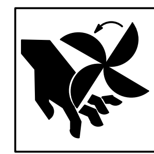
DES ORGANES MOBILES peuvent provoquer des blessures.

- Ne pas s'approcher des organes mobiles.
- Ne pas s'approcher des points de coincement tels que des rouleaux de commande.



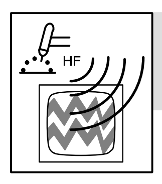
LES FILS DE SOUDAGE peuvent provoquer des blessures.

- Ne pas appuyer sur la gachette avant d'en avoir reçu l'instruction.
- Ne pas diriger le pistolet vers soi, d'autres personnes ou toute pièce mécanique en engageant le fil de soudage.



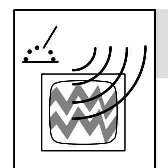
DES ORGANES MOBILES peuvent provoquer des blessures.

- Rester à l'écart des organes mobiles comme le ventilateur.
- Maintenir fermés et fixement en place les portes, panneaux, recouvrements et dispositifs de protection.



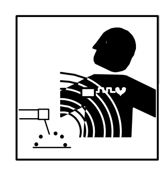
LE RAYONNEMENT HAUTE FRÉQUENCE (H.F.) risque de provoquer des interférences.

- Le rayonnement haute frequence peut provoquer des interférences avec les équipements de radio–navigation et de communication, les services de sécurité et les ordinateurs.
- Demander seulement à des personnes qualifiées familiarisées avec des équipements électroniques de faire fonctionner l'installation.
- L'utilisateur est tenu de faire corriger rapidement par un électricien qualifié les interférences résultant de l'installation.
- Si le FCC signale des interférences, arrêter immédiatement l'appareil.
- Effectuer régulièrement le contrôle et l'entretien de l'installation.
- Maintenir soigneusement fermés les portes et les panneaux des sources de haute fréquence, maintenir les éclateurs à une distance correcte et utiliser une terre et et un blindage pour réduire les interférences éventuelles.



LE SOUDAGE À L'ARC risque de provoquer des interférences.

- L'énergie électromagnétique risque de provoquer des interférences pour l'équipement électronique sensible tel que les ordinateurs et l'équipement commandé par ordinateur tel que les robots.
- Veiller à ce que tout l'équipement de la zone de soudage soit compatible électromagnétiquement.
- Pour réduire la possibilité d'interférence, maintenir les câbles de soudage aussi courts que possible, les grouper, et les poser aussi bas que possible (ex. par terre).
- Veiller à souder à une distance de 100 mètres de tout équipement électronique sensible.
- Veiller à ce que ce poste de soudage soit posé et mis à la terre conformément à ce mode d'emploi.
- En cas d'interférences après avoir pris les mesures précédentes, il incombe à l'utilisateur de prendre des mesures supplémentaires telles que le déplacement du poste, l'utilisation de câbles blindés, l'utilisation de filtres de ligne ou la pose de protecteurs dans la zone de travail.



LES CHAMPS MAGNÉTIQUES peuvent affecter les stimulateurs cardiaques.

- Porteurs de stimulateur cardiaque, restez à distance.
- Les porteurs d'un stimulateur cardiaque doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de gougeage ou de soudage par points.

1-4. Principales normes de sécurité

Safety in Welding and Cutting, norme ANSI Z49.1, de l'American Welding Society, 550 N.W. Lejeune Rd, Miami FL 33126

Safety and Health Sandards, OSHA 29 CFR 1910, du Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Recommended Safe Practice for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances, norme AWS F4.1, de l'American Welding Society, 550 N.W. Lejeune Rd, Miami FL 33126

National Electrical Code, NFPA Standard 70, de la National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, de la Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202.

Règles de sécurité en soudage, coupage et procédés connexes, norme CSA W117.2, de l'Association canadienne de normalisation, vente de normes, 178 Rexdale Boulevard, Rexdale (Ontario) Canada M9W 1R3.

Safe Practices For Occupation And Educational Eye And Face Protection, norme ANSI Z87.1, de l'American National Standards Institute, 1430 Broadway, New York, NY 10018.

Cutting and Welding Processes, norme NFPA 51B, de la National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

1-5. Information sur les champs électromagnétiques

Données sur le soudage électrique et sur les effets, pour l'organisme, des champs magnétiques basse fréquence

Le courant de soudage, pendant son passage dans les câbles de soudage, causera des champs électromagnétiques. Il y a eu et il y a encore un certain souci à propos de tels champs. Cependant, après avoir examiné plus de 500 études qui ont été faites pendant une période de recherche de 17 ans, un comité spécial ruban bleu du National Research Council a conclu: "L'accumulation de preuves, suivant le jugement du comité, n'a pas démontré que l'exposition aux champs magnétiques et champs électriques à haute fréquence représente un risque à la santé humaine". Toutefois, des études sont toujours en cours et les preuves continuent à être examinées. En attendant que les conclusions finales de la recherche soient établies, il vous serait souhaitable de réduire votre exposition aux champs électromagnétiques pendant le soudage ou le coupage.

Afin de réduire les champs électromagnétiques dans l'environnement de travail, respecter les consignes suivantes :

1 Garder les câbles ensembles en les torsadant ou en les attachant avec du ruban adhésif.

2 Mettre tous les câbles du côté opposé de l'opérateur.

3 Ne pas courber pas et ne pas entourer pas les câbles autour de votre corps.

4 Garder le poste de soudage et les câbles le plus loin possible de vous.

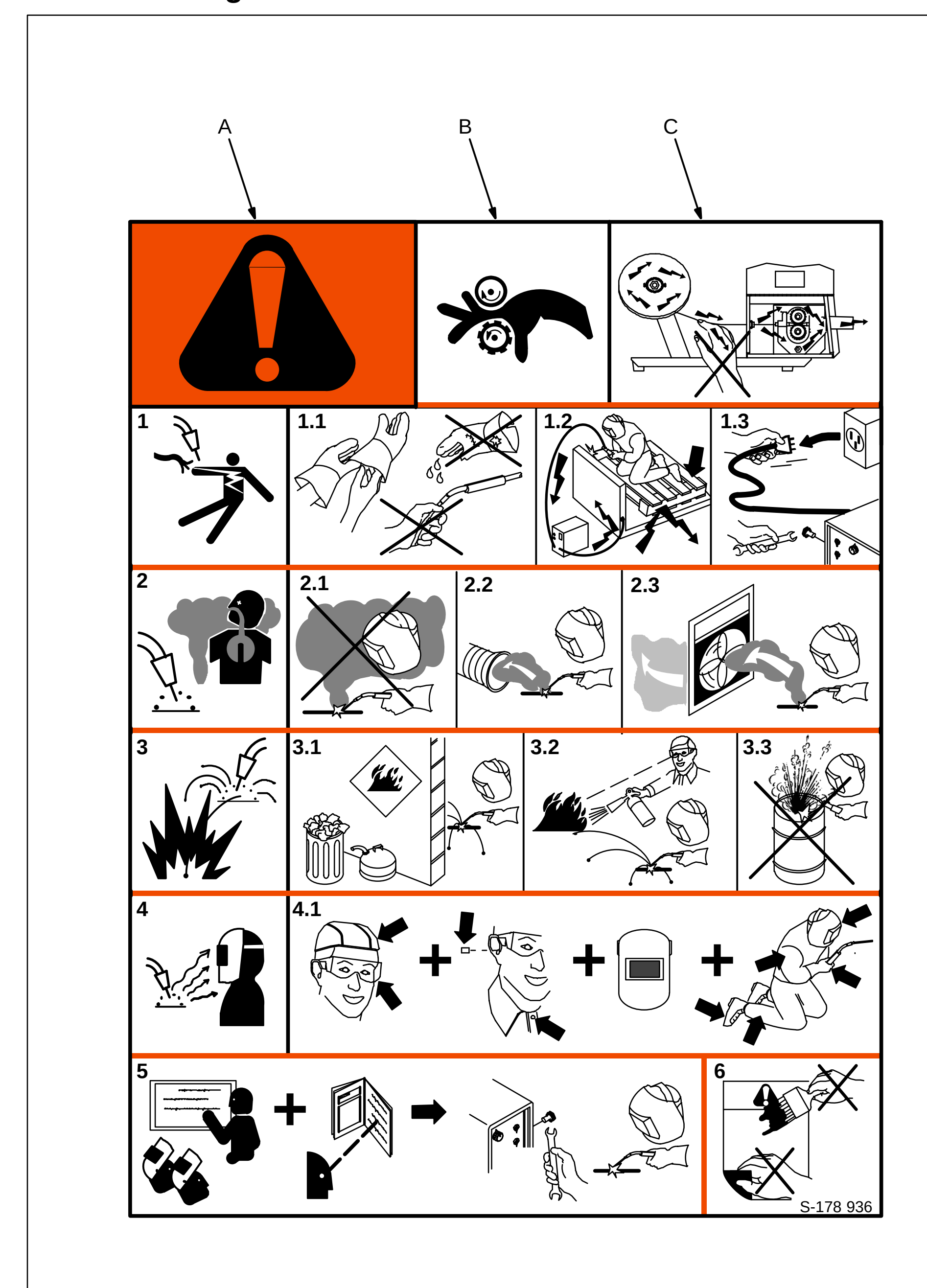
5 Relier la pince de masse le plus près possible de la zone de soudure.

Consignes relatives aux stimulateurs cardiaques :

Les personnes qui portent un stimulateur cardiaque doivent avant tout consulter leur docteur. Si vous êtes déclaré apte par votre docteur, il est alors recommandé de respecter les consignes ci–dessus.

SECTION 2 – DEFINITIONS

2-1. Warning Label Definitions



A. Warning! Watch Out! There are possible hazards as shown by the symbols.

B. Drive rolls can injure fingers.

C. Welding wire and drive parts are at welding voltage during operation – keep hands and metal objects clear.

1 Electric shock can kill.

1.1 Wear dry insulating gloves. Do not touch electrode with bare hand. Do not wear wet or damaged gloves.

1.2 Protect yourself from electric shock by insulating yourself from work and ground.

1.3 Disconnect input plug or power before working on machine.

2 Breathing welding fumes can be hazardous to your health.

2.1 Keep your head out of the fumes.

2.2 Use forced ventilation or local exhaust to remove the fumes.

2.3 Use ventilating fan to remove fumes.

3 Welding sparks can cause explosion or fire.

3.1 Keep flammables away from welding. Don't weld near flammables.

3.2 Welding sparks can cause fires. Have a fire extinguisher nearby and have a watch person ready to use it.

3.3 Do not weld on drums or any closed containers.

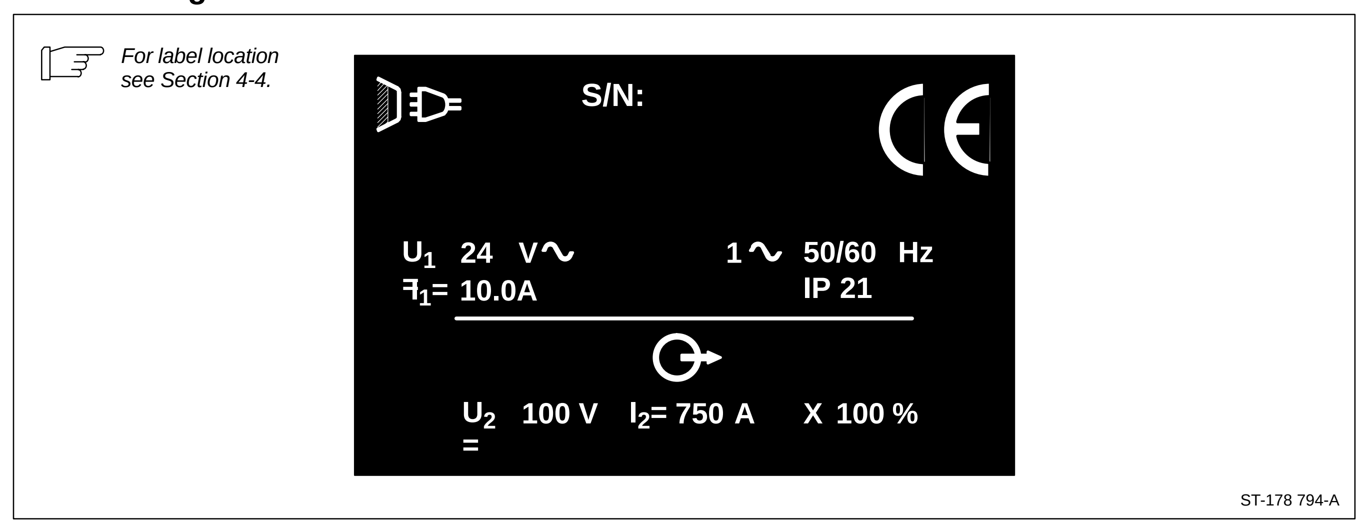
4 Arc rays can burn eyes and injure skin.

4.1 Wear hat and safety glasses. Use ear protection and button shirt collar. Use welding helmet with correct shade of filter. Wear complete body protection.

5 Become trained and read the instructions before working on the machine or welding.

6 Do not remove or paint over (cover) the label.

2-2. Rating Label For CE Products



2-3. Symbols And Definitions

Note *Some symbols are found only on CE products.*

A	Amperes	V	Volts		Alternating Current	X	Duty Cycle
IP	Degree Of Protection	Hz	Hertz		Circuit Breaker		Wire Feed
	Jog		Output		Trigger		Line Connection
	Press To Set		Press To Reset		Trigger Hold On		Trigger Hold Off
	Purge	••••t	Spot Weld Time		Spot Weld		Continuous Weld
t	Burnback Time	t1	Preflow Time	t2	Postflow Time		Read Instructions
	Increase	I_1	Primary Current	I_2	Rated Current	U_2	Load Voltage
U_1	Primary Voltage						

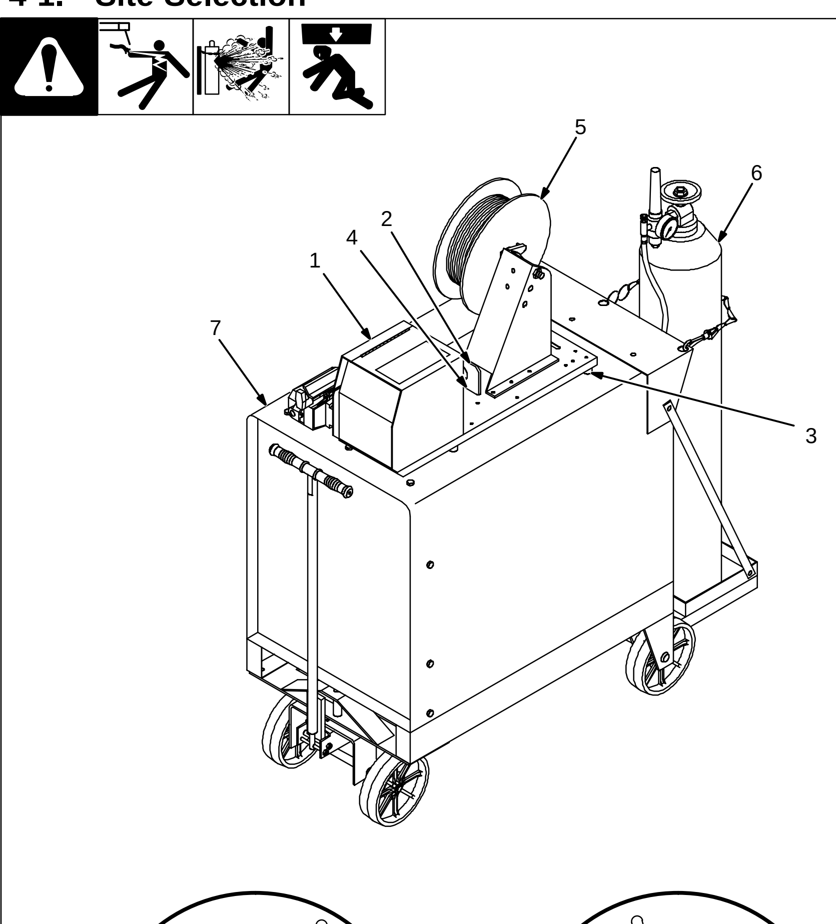
SECTION 3 – INTRODUCTION

3-1. Specifications

Type of Input Power	Welding Power Source Type	Wire Feed Speed Range	Wire Diameter Range	Welding Circuit Rating	IP Rating	Overall Dimensions	Weight
24 Volts AC Single-Phase 10 Amperes 50/60 Hertz	Constant Voltage (CV) DC With 14-Pin And Contactor Control	Standard: 50 To 780 ipm (1.3 To 19.8 mpm) Optional High Speed: 90 To 1400 ipm (2.3 To 35.6 mpm)	.023 To 1/8 in (0.6 To 3.2 mm) Max Spool Weight: 60 lb (27 kg)	100 Volts, 750 Amperes, 100% Duty Cycle	IP 21	Length: 26-1/2 in (673 mm) Width: 14 in (356 mm) Height: 14 in (356 mm)	45 lb (20 kg)

SECTION 4 – INSTALLATION

4-1. Site Selection



1 Wire Feeder

2 Lifting Eye

3 Rubber Feet

4 Slot

Choose slot that allows all rubber feet to sit securely on top of welding power source.

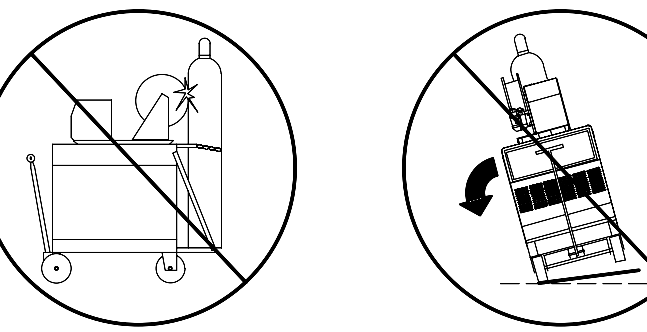
5 Wire Spool/Reel

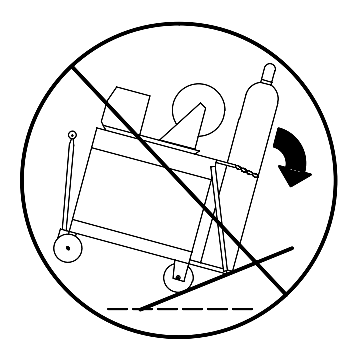
6 Gas Cylinder (Customer Supplied)

7 Welding Power Source

▲ **Do not put feeder where welding wire hits cylinder.**

▲ **Do not move or operate equipment when it could tip.**



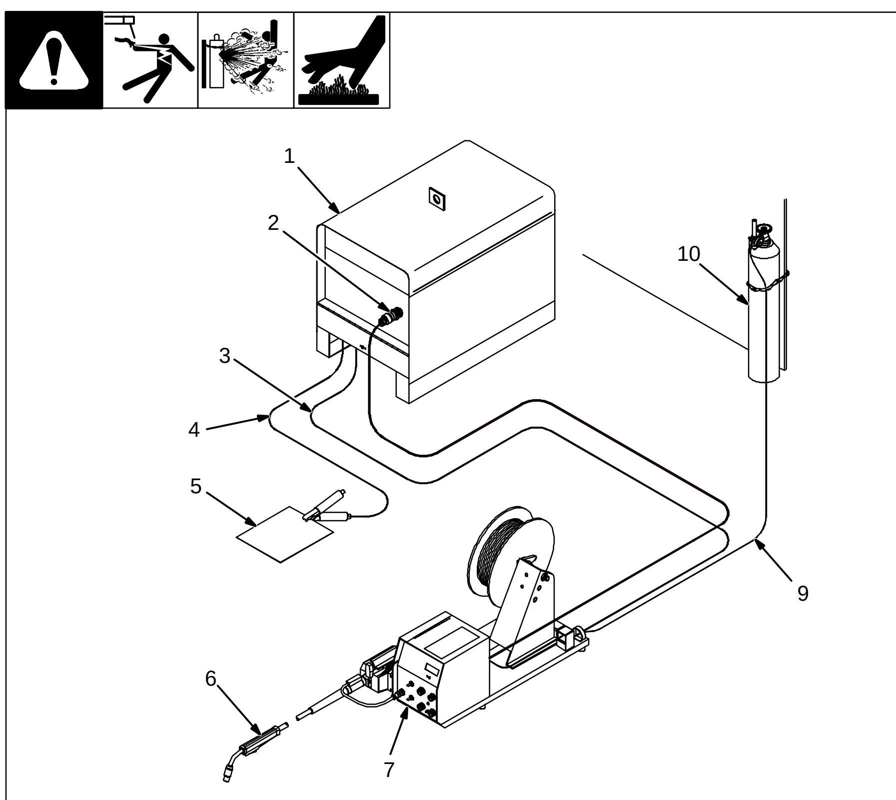


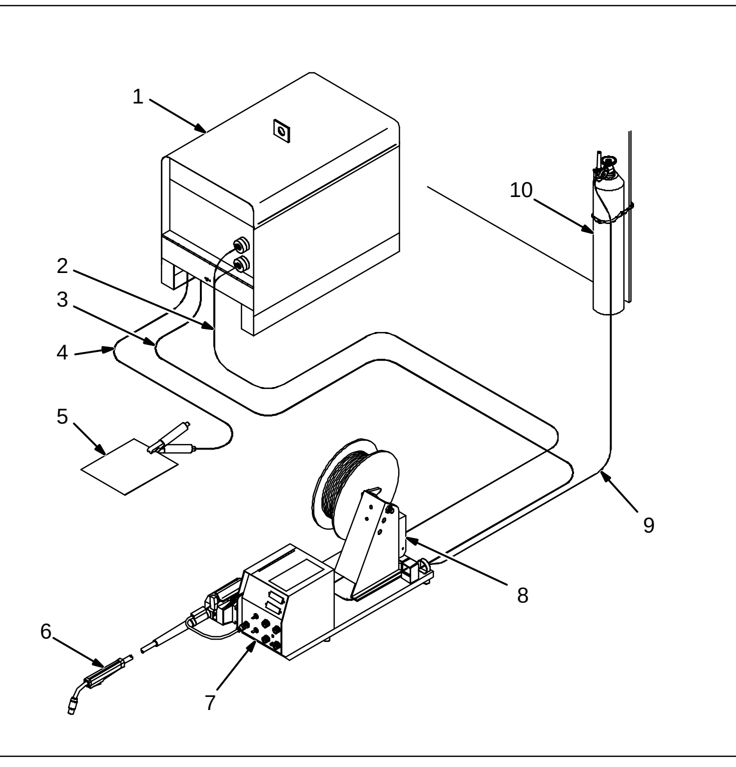
Ref. ST-152 468-A / ST-152 467-C

4-2. Gun Recommendation Table

Process	Gun
GMAW – Hard or Cored Wires	Roughneck C-Series Guns: 300, 400, 500, And 600 Amp.
FCAW – Self-Shielding Wires	FC-1260 Or FC-1150

4-3. Equipment Connection Diagrams





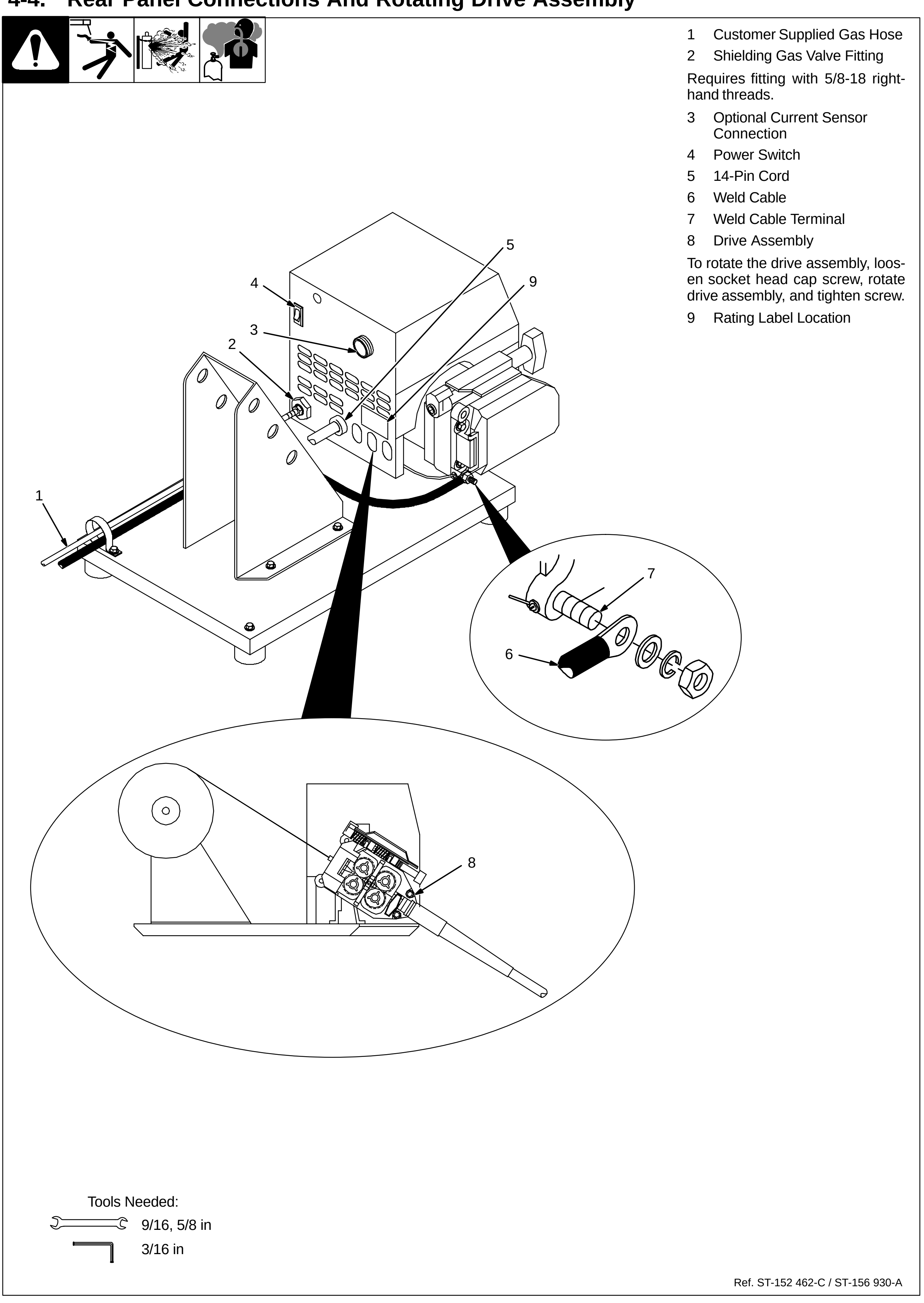
1 Welding Power Source
2 Contactor Control/Power Cord
3 Positive (+) Weld Cable
4 Negative (–) Weld Cable
5 Workpiece
6 Gun
7 Wire Feeder
8 PSA-2 Control (Optional)

Use with welding power sources supplying 115 volts ac power.

9 Gas Hose
10 Gas Cylinder

152 319-B / 152 320-C

4-4. Rear Panel Connections And Rotating Drive Assembly



1 Customer Supplied Gas Hose

2 Shielding Gas Valve Fitting

Requires fitting with 5/8-18 right-hand threads.

3 Optional Current Sensor Connection

4 Power Switch

5 14-Pin Cord

6 Weld Cable

7 Weld Cable Terminal

8 Drive Assembly

To rotate the drive assembly, loosen socket head cap screw, rotate drive assembly, and tighten screw.

9 Rating Label Location

4-5. 14-Pin Plug Information

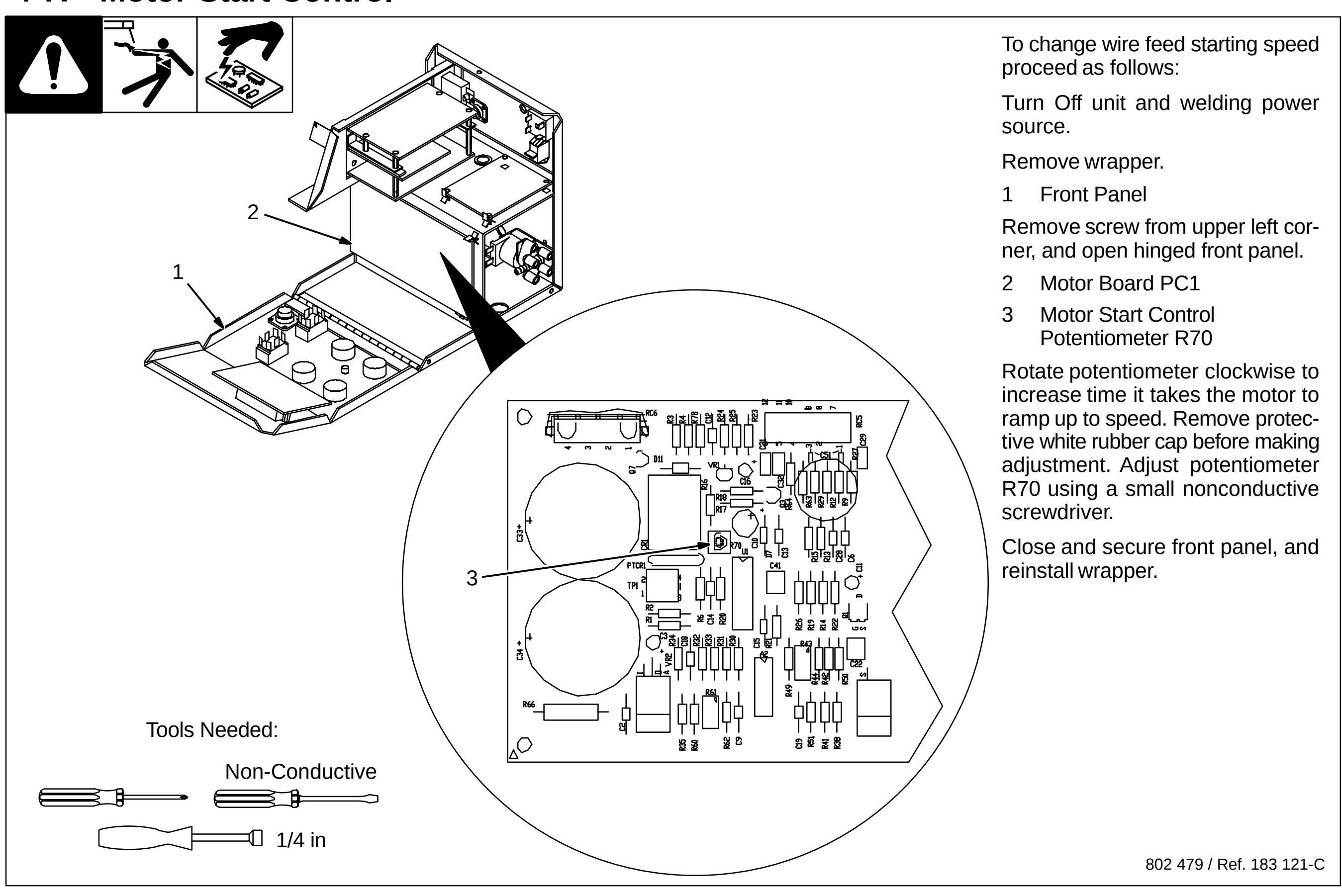
REMOTE 14	Pin*	Pin Information
	A	24 volts ac with respect to socket G.
	B	Contact closure to A completes 24 volts ac contactor control circuit.
	G	Circuit common for 24 volts AC circuit.
	C	+10 volts dc output to remote control with respect to socket D.
	D	Remote control circuit common.
	E	0 to +10 volts dc input command signal from remote control with respect to socket D.
	H	Voltage feedback; 0 to +10 volts dc, 1 volt per 10 arc volts.
	F	Current feedback; 0 to +10 volts dc, 1 volt per 100 amperes.

*The remaining pins are not used.

4-6. Wire Type, Size, And Feed Speed Capability Table

Motor Speed	Wire Type	Wire Size	Feed Speed Capability
Standard	All	.023 To 5/64 in (0.6 To 2 mm)	50 To 780 ipm (1.3 To 19.8 mpm)
Standard	All	3/32 To 7/64 in (2.4 To 2.8 mm)	50 To 700 ipm (1.3 To 17.8 mpm)
Standard	All	1/8 in (3.2 mm)	50 To 300 ipm (1.3 To 7.6 mpm)
Optional High Speed	All	.023 To 5/64 in (0.6 To 2 mm)	92 To 1440 ipm (2.3 To 35.6 mpm)

4-7. Motor Start Control



To change wire feed starting speed proceed as follows:

Turn Off unit and welding power source.

Remove wrapper.

1 Front Panel

Remove screw from upper left corner, and open hinged front panel.

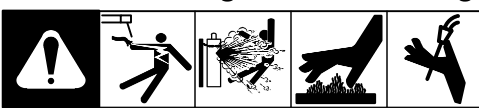
2 Motor Board PC1

3 Motor Start Control Potentiometer R70

Rotate potentiometer clockwise to increase time it takes the motor to ramp up to speed. Remove protective white rubber cap before making adjustment. Adjust potentiometer R70 using a small nonconductive screwdriver.

Close and secure front panel, and reinstall wrapper.

4-8. Installing And Threading Welding Wire



☞ *Be sure that outlet cable has proper size liner for the welding wire size. When installing gun, position liner extending from outlet wire guide as close as possible to drive rolls without touching.*

Install gun. Lay gun cable out straight. Cut off end of wire. Push wire through guides up to drive rolls; continue to hold wire. Press Jog button to feed wire out gun.

☞ *For soft wire or small diameter stainless steel wire, use 2 drive rolls and set drive roll pressure from 0 to a maximum of 4 on the pressure indicator scale (so that only the inner spring is compressed). This setting will generally give the best performance for these types of wires.*

To adjust drive roll pressure, hold nozzle about 2 in (51 mm) from nonconductive surface and press gun trigger to feed wire against surface. Tighten knob so wire does not slip. Do not overtighten. If contact tip is completely blocked, wire should slip at the feeder (see pressure adjustment above).

Cut wire off. Close cover.

If necessary, move hub and spool support so wire runs straight from the spool through the drive rolls. Install wire spool. Adjust tension nut so wire is taut when wire feed stops.

Install wire guides and anti-wear guide.

Install drive rolls.

Pressure Indicator Scale

Pressure Adjust

NONCONDUCTIVE SURFACE
No Wire Slip

NONCONDUCTIVE SURFACE
Wire Slips

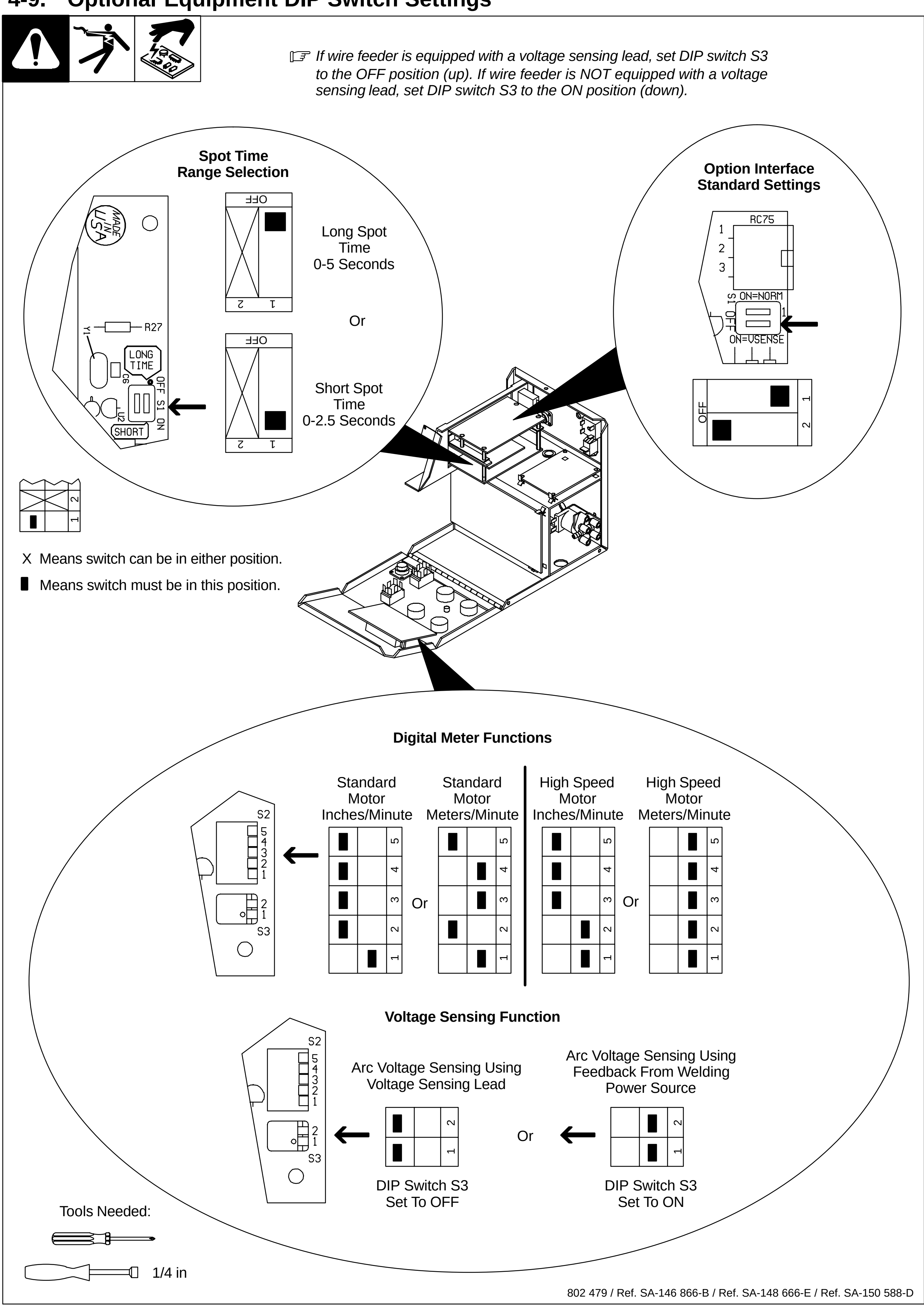
Tools Needed:

3/16, 5/64 in

15/16, 3/8 in

Ref. ST-156 929-A / Ref. SC-150 922 / 802 438 / Ref. ST-156 930 / S-0627-A

4-9. Optional Equipment DIP Switch Settings



SECTION 5 – OPERATION

5-1. Front Panel Controls

1 Voltmeter (Optional) (See Section NO TAG)

2 Wire Speed Meter (Optional)

Factory set to display inches per minute. If display of meters per minute is desired, see Section 4-9.

3 Schedule A Wire Speed Control

The scale is calibrated in inches per minute x 100 and meter per minute.

4 Schedule A Voltage Control (Optional)

☞ *For dual schedule applications, a dual schedule switch is required for the gun. Obtain a proper dual schedule switch and install according to its instructions.*

5 Schedule B Indicator Light (Optional)

6 Schedule B Voltage Control (Optional)

7 Schedule B Wire Speed Control (Optional)

8 Press To Set Button (Optional)

Press and hold button to preset Schedule B wire feed speed and/or voltage.

9 Jog/Purge Switch

Push up to momentarily feed welding wire at speed set on Wire Speed control without energizing welding circuit or shielding gas valve.

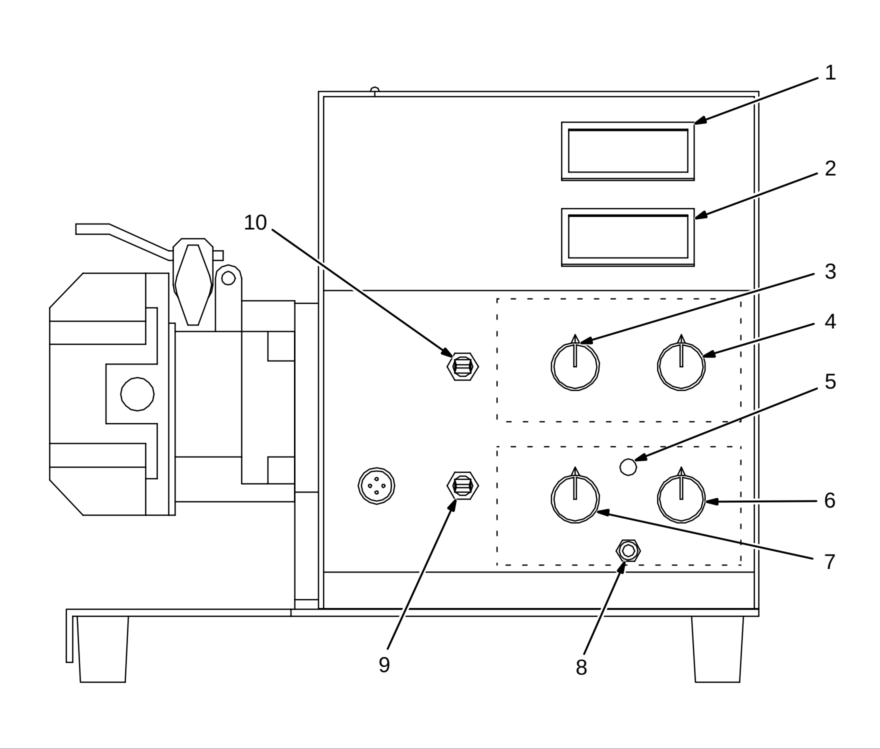
Push down to momentarily energize gas valve to purge air from gun or adjust gas regulator.

Center position is off.

10 Trigger Hold Switch (Optional)

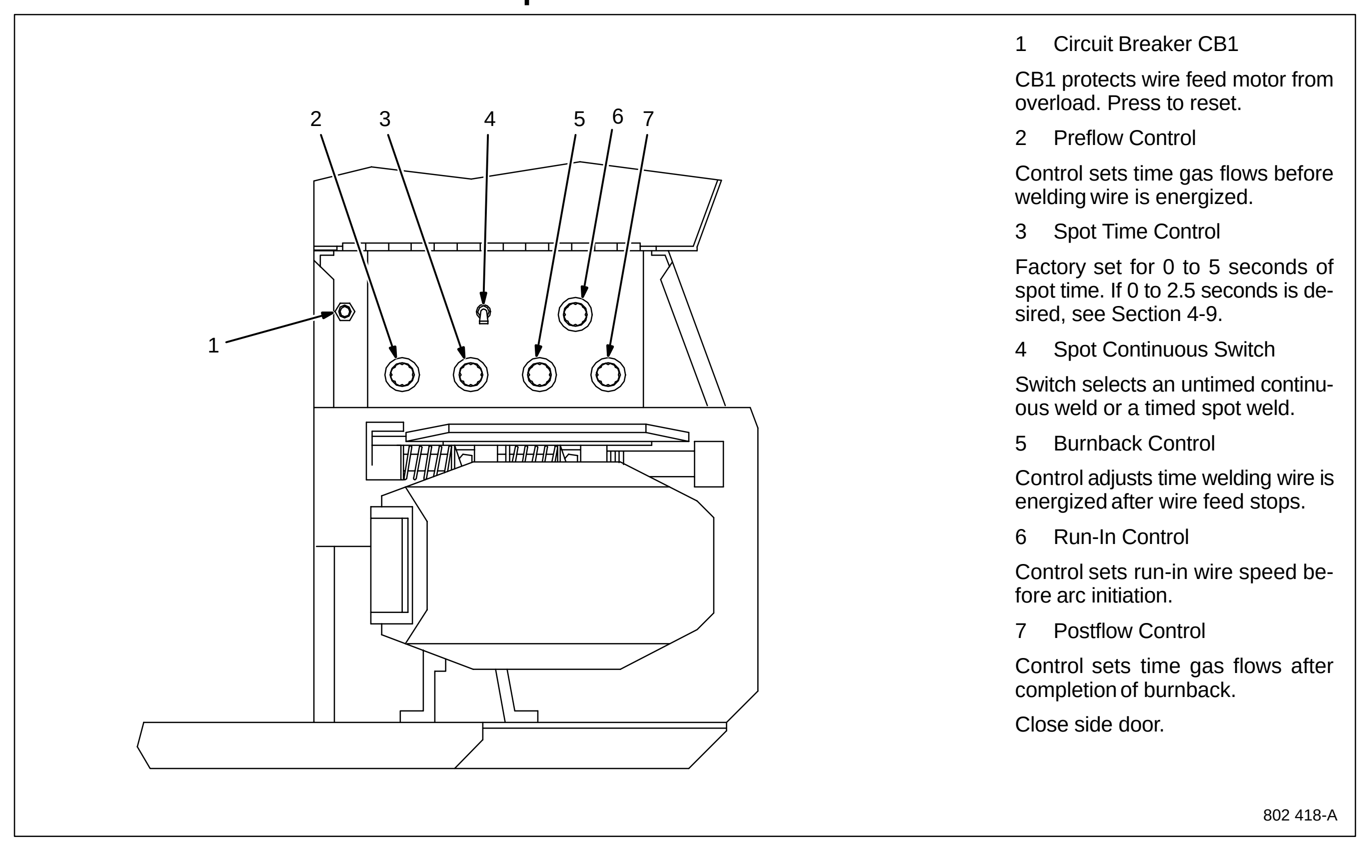
Push up to weld without holding gun trigger throughout the weld cycle.

To start weld, press and release gun trigger within three seconds after an arc has been struck. To end weld, press and release gun trigger.



ST-151 845-B

5-2. Overload Protection And Optional Side Panel Controls



1 Circuit Breaker CB1

CB1 protects wire feed motor from overload. Press to reset.

2 Preflow Control

Control sets time gas flows before welding wire is energized.

3 Spot Time Control

Factory set for 0 to 5 seconds of spot time. If 0 to 2.5 seconds is desired, see Section 4-9.

4 Spot Continuous Switch

Switch selects an untimed continuous weld or a timed spot weld.

5 Burnback Control

Control adjusts time welding wire is energized after wire feed stops.

6 Run-In Control

Control sets run-in wire speed before arc initiation.

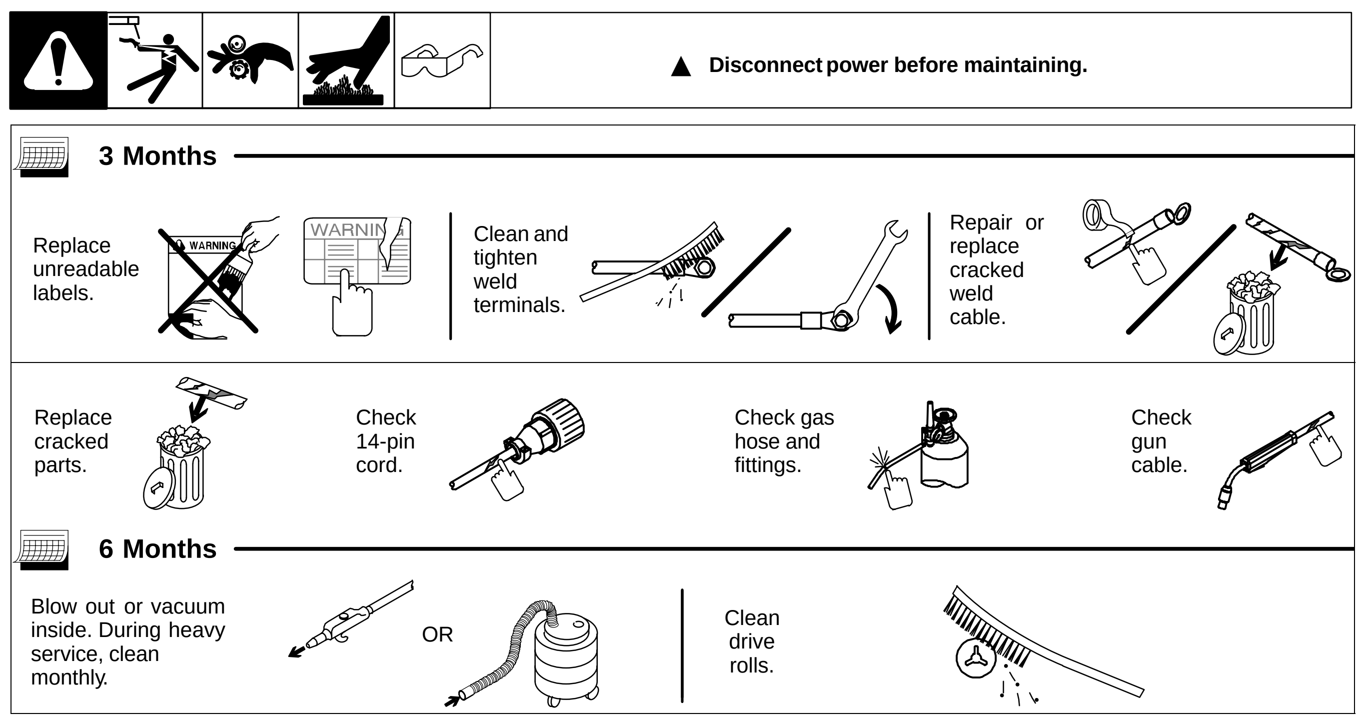
7 Postflow Control

Control sets time gas flows after completion of burnback.

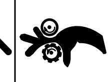
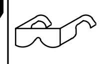
Close side door.

SECTION 6 – MAINTENANCE AND TROUBLESHOOTING

6-1. Routine Maintenance



6-2. Troubleshooting

▲ **Disconnect power before troubleshooting**

Trouble	Remedy
Wire feeds, shielding gas flows, but electrode wire is not energized.	Check interconnecting cord connections. If secure, check cord for continuity and repair or replace (see Sections 4-3 and 4-4).
Wire feeder is on, meter(s) do not light up, motor does not run, gas valve and welding power source contactor do not pull in.	Check and reset CB1 (see Section 5-2).
Electrode wire feeding stops or feeds erratically during welding.	Check gun trigger connection. See gun Owner’s Manual.
	Check gun trigger. See gun Owner’s Manual.
	Readjust hub tension and drive roll pressure (see Section 4-8).
	Change to correct size drive roll (see Table 8-1).
	Clean or replace dirty or worn drive roll.
	Incorrect size or worn wire guides.
	Replace contact tip or liner. See gun Owner’s Manual.
	Remove weld spatter or foreign matter from around nozzle opening.
	Have Factory Authorized Service Agency check drive motor or motor control board PC1.
Motor runs slowly.	Check for correct input voltage.
Wire does not feed until trigger is pulled, but continues to feed after trigger is released, and trigger hold is not on.	Check for a short between welding gun trigger leads and weld cable. Repair short or replace welding gun.
Gas valve in feeder is rattling loudly along with possible erratic or slow wire feed speed.	Check for a short between welding gun trigger leads and weld cable. Repair short or replace welding gun.
Unit does not switch out of Run-In Speed.	When using this unit with certain older style Miller CV power sources, a weld current sensor (Part No. 160 963) must be used. Power sources include the Deltaweld prior to Serial No. KG141349 and the Dimension prior to Serial No. KC253517.
Wire feeder power is on, displays light up, but unit is inoperative.	Check welding gun trigger leads for continuity, and repair leads or replace gun.
Schedule A Wire Feed Speed works, but Schedule B Wire Feed Speed does not work or is erratic.	DIP Switch S1(1) on Option Interface Board PC70 must be in the On position (see Section 4-9).
Wire Feed Speed Meter display does not match actual wire feed speed.	Set DIP Switch S2 on Meter Board PC60 in Inches/Minute mode (see Section 4-9).
Actual arc voltage display on meter is held after trigger is released, or arc voltage does not change while welding.	Set DIP Switch S2 on Meter Board PC60 in Voltage Monitor mode (see Section 4-9).

SECTION 7 – ELECTRICAL DIAGRAM

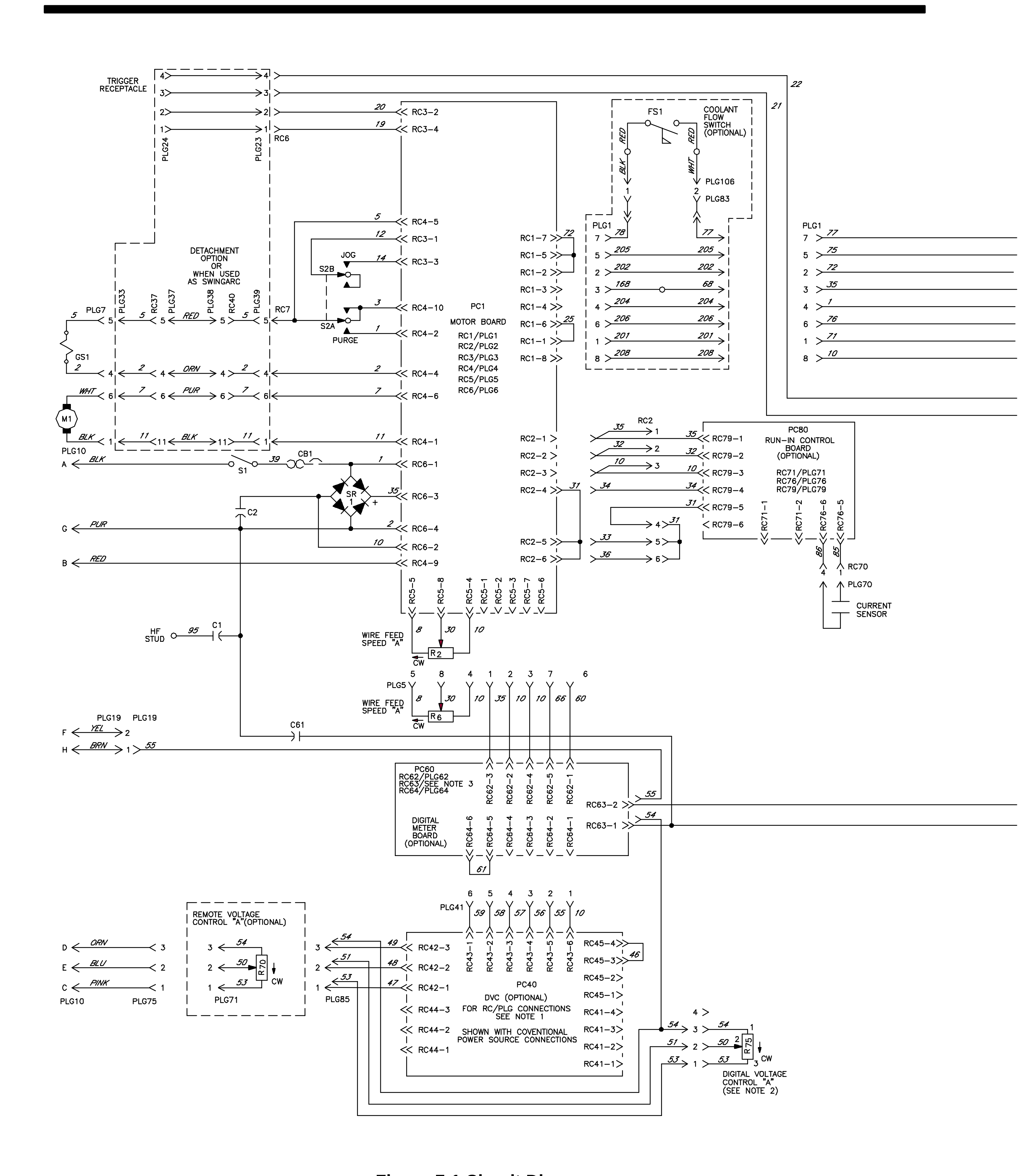


Figure 7-1.Circuit Diagram

⚠ WARNING



ELECTRIC SHOCK HAZARD

- Do not touch live electrical parts.
- Disconnect input power or stop engine before servicing.
- Do not operate with covers removed.
- Have only qualified persons install, use, or service this unit.

PC30 (OPTIONAL) PREFLOW POSTFLOW SPOTTIME BURNBACK TRIGGER HOLD RC31/PLG11 RC35/PLG35

S31 TRIGGER HOLD OFF ON — S32 CONT SPOT

PC31 (OPTIONAL) TRIGGER HOLD RC31/PLG11 RC35/PLG35

S31 TRIGGER HOLD ON OFF

PC10 BURNBACK BOARD (OPTIONAL) RC11/PLG11

PC50 TACHOMETER BOARD (OPTIONAL) RC53/PLG53 RC54/PLG2 RC56/PLG56

DETACHMENT OPTION OR WHEN USED AS SWINGARC

PC51 TACHOMETER PICK-UP (OPTIONAL)

TO DRIVE HOUSING

VOLTAGE SENSE LEAD (OPTIONAL)

INTERFACE BOARD (OPTIONAL) RC72/PLG72 RC75/PLG74 RC76/PLG76 RC78/PLG78 RC79/PLG79

PC70

DIGITAL DUAL SCHEDULE (OPTIONAL)

LED71 — S71 PRESS TO SET — R77 WIRE FEED SPEED "B" — R76 VOLTAGE CONTROL "B" — R75 VOLTAGE CONTROL "A" (SEE NOTE 2) — CW

NOTE 1) WHEN DIGITAL VOLTAGE CONTROL IS USED WITH A CONVENTIONAL POWER SOURCE MAKE THE FOLLOWING CONNECTIONS AT PC 40:

RC41/PLG44
RC42/PLG82
RC43/PLG42
RC44/NO CONNECTION
RC45/PLG61

WHEN DIGITAL VOLTAGE CONTROL IS USED WITH AN INVERTER POWER SOURCE MAKE THE FOLLOWING CONNECTIONS AT PC40:

RC41/PLG61
RC42/NO CONNECTION
RC43/PLG42
RC44/PLG82
RC45/PLG44

NOTE 2) USED WITH FOLLOWING OPTION:

DIGITAL VOLTAGE CONTROL

OR

DIGITAL METERS WITH REMOTE DIGITAL CONTROL

NOTE 3) WHEN USED AS A METER OPTION CONNECT AS FOLLOWS:

RC63/PLG63

WHEN USED AS DIGITAL METERS WITH REMOTE DIGITAL CONTROL OPTION CONNECT AS FOLLOWS:

RC63/PLG60

196 503–A

SECTION 8 – PARTS LIST

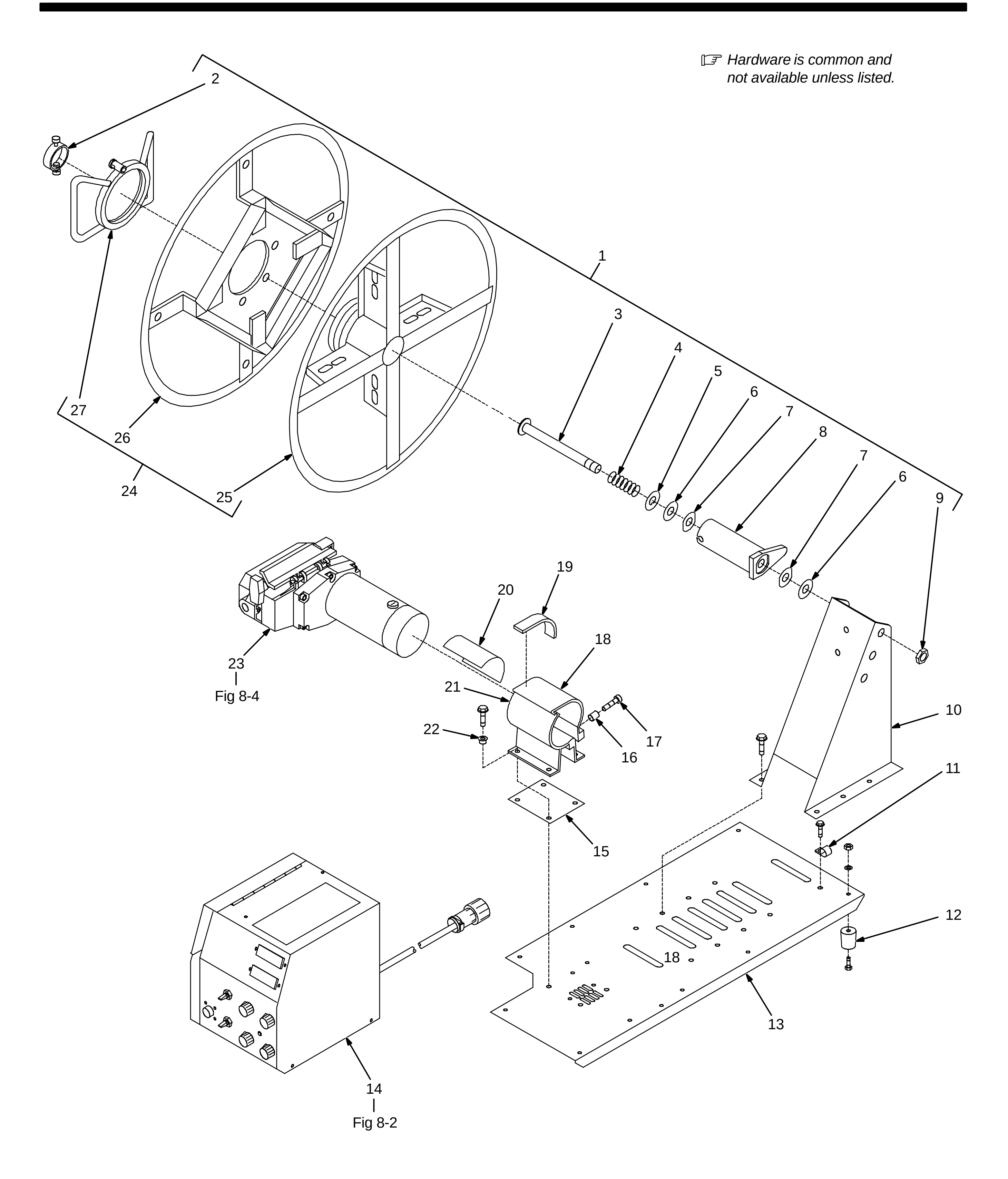


Figure 8-1. Main Assembly

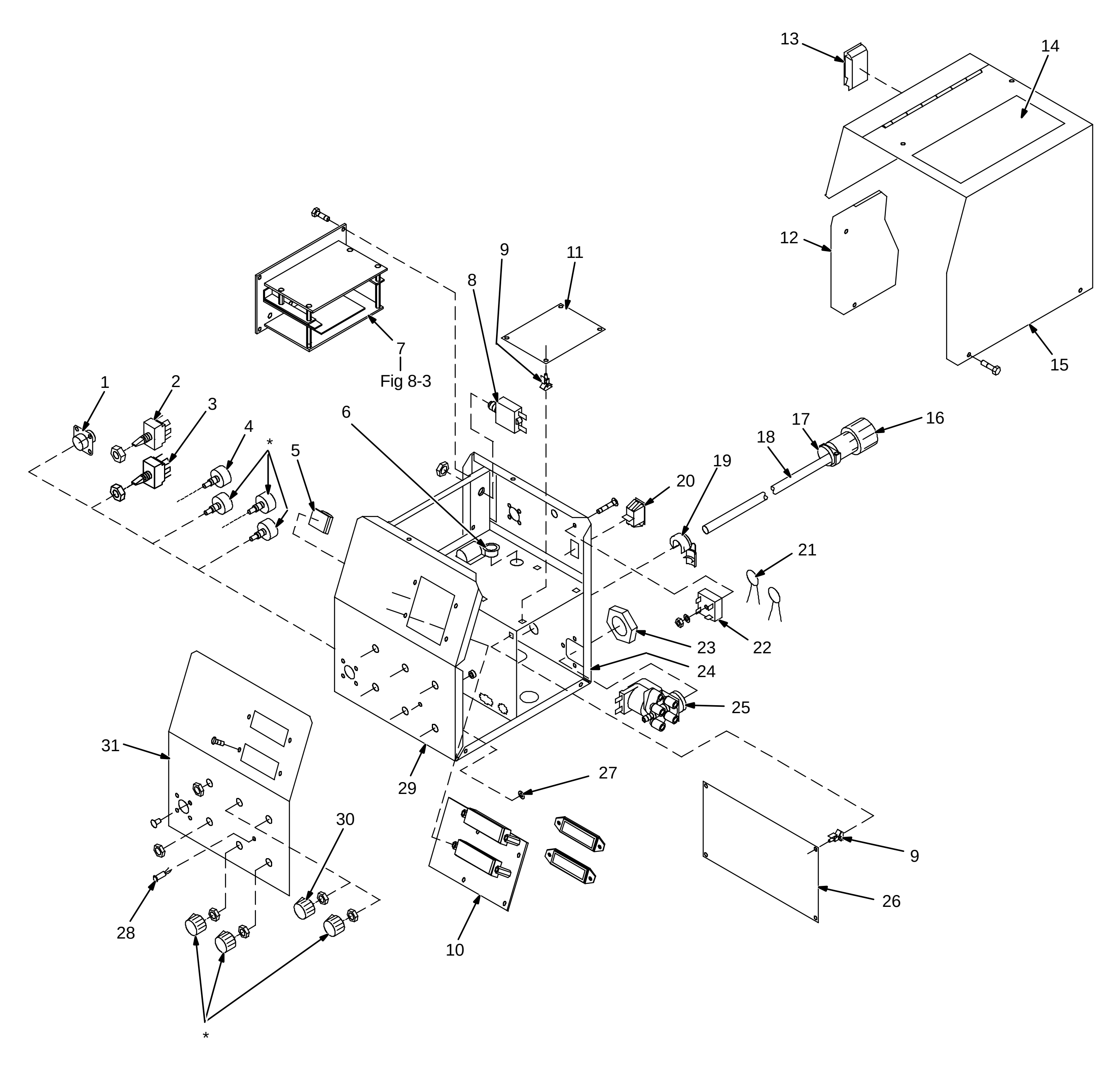
Item No.	Part No.	Description	Quantity
		Figure 8-1. Main Assembly	
1	141 753	HUB & SPINDLE ASSEMBLY, (consisting of)	1
2	058 427	.. RING, retaining spool	1
3	180 571	.. SHAFT, support spool	1
4	010 233	.. SPRING, cprsn .970 OD x .120 wire x 1.250pld	1
5	057 971	.. WASHER, flat stl keyed 1.500dia x .125thk	1
6	010 191	.. WASHER, fbr .656 ID x 1.500 OD x .125thk	2
7	058 628	.. WASHER, brake stl	2
8	058 428	.. HUB, spool	1
9	135 205	.. NUT, stl slflkg hex reg .625-11 w/nylon insert	1
10	141 411	SUPPORT, spool	1
11	108 020	CLAMP, stl cush 1.625dia x .281mtg hole	1
12	134 306	FOOT, rubber 1.250dia x 1.375 high	4
13	133 963	BASE	1
14	Fig 8-2	CONTROL BOX	1
15	159 647	INSULATOR, motor clamp	1
16	138 113	SPACER, stl .500 OD x 12ga wall x .625	1
17	010 667	SCREW, cap stl sch .250-20 x 2.250	1
18	156 243	CLAMP, motor top	1
19	083 639	WEATHERSTRIPPING, adh .125 x 1.500 (order by ft)	1ft
20	145 639	STRIP, buna N compressed sheet .062 x 4.000 x 4.000	1
21	159 646	CLAMP, motor base	1
22	159 360	INSULATOR, screw machine	4
23	Fig 8-4	DRIVE ASSEMBLY, wire	1
24	♦108 008	REEL, wire 60 lb (consisting of)	1
25	124 900	.. SUPPORT, reel spool	1
26	+168 104	.. RETAINER, spool support	1
	166 594	.. LABEL, caution falling wire reel can cause damage	1
27	168 103	.. NUT, spanner retaining	1

♦OPTIONAL

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

☞ *Hardware is common and not available unless listed.*



*See option that is applicable

Ref. ST-142 438-G

Figure 8-2. Control Box

Item No.	Dia. Mkgs.	Part No.	Description	Quantity

Figure 8-2. Control Box (Fig 8-1 Item 14)

1	RC6	048 282	CONNECTOR w/SOCKETS	1
2	S31	♦134 847	SWITCH, tgl SPDT 15A 125VAC	1
3	S2	134 846	SWITCH, tgl SPTT 15A 125VAC	1
4	R2	073 562	POTENTIOMETER, 1/T 2W 10K ohm	1
		605 339	WASHER, lock stl intl tooth .375	1
5		059 712	CLIP, component .437dia mtg adh back	2
6		030 170	BUSHING, .750 ID x 1.000mtg hole	1
7		Fig 8-3	CONTROL PANEL	1
8	CB1	083 432	CIRCUIT BREAKER, 1P 10A 250V	1
9		134 201	STAND OFF SUPPORT, PC card	8
		136 339	COVER, opening meter (not used when unit has digital display kit)	2
		♦♦180 312	DIGITAL DISPLAY, (consisting of)	1
		132 611	.. OPTICAL ENCODER DISC	1
10	PC60	157 719	.. METER, voltage WFS dual	1
	PC51	153 631	.. CIRCUIT CARD, digital tach	1
11	PC50	132 370	.. CIRCUIT CARD, tachometer	1
	PLG19	151 490	.. CONNECTOR, rect univ 039	1
	PLG85	131 203	.. CONNECTOR & SOCKETS	1
	PLG60	138 045	.. CONNECTOR & SOCKETS	1
	PLG41	115 090	.. CONNECTOR & SOCKETS	1
	PLG53	115 092	.. CONNECTOR & SOCKETS	1
	PLG52	115 093	.. CONNECTOR & SOCKETS	1
	PLG44	115 094	.. CONNECTOR & SOCKETS	1
	PLG5	130 203	.. CONNECTOR & SOCKETS	1
	PLG62	131 055	.. CONNECTOR & SOCKETS	1
	PLG64	167 361	.. CONNECTOR & SOCKETS	1
	R6,75	603 856	.. POTENTIOMETER, 10/2	2
		097 922	.. KNOB, pointer	1
	PLG56	131 204	CONNECTOR & SOCKETS	1
	PLG63	138 045	CONNECTOR & SOCKETS	1
12		133 335	PANEL, side lower	1
13		151 187	LATCH, slide flush style	1
14		134 464	LABEL, warning general precautionary	1
15		+133 337	WRAPPER	1
16	PLG10	141 162	CONNECTOR & PINS	1
17		079 739	CONNECTOR, circ clamp str rlf sz 17-20	1
18		163 519	CABLE, port No. 18/14 8/c (order by ft)	12ft
19		010 325	BUSHING, .840 ID x .875mtg hole	1
20	S1	111 997	SWITCH, rocker SPST 10A 250VAC	1
21	C1,2	147 859	CAPACITOR ASSEMBLY	1
	PLG19	158 719	CONNECTOR & PINS	1
	PLG75	131 204	CONNECTOR & SOCKETS	1
22	SR1	035 704	RECTIFIER, integ 40A 800V	1
23		605 227	NUT, nyl hex jam .750NPST	1
24		167 804	CASE SECTION, bottom/rear	1
25	GS1	125 785	VALVE, 24VAC	1
	PLG7	115 092	CONNECTOR & SOCKETS	1
	RC7	135 409	CONNECTOR & SOCKETS	1
26	PC1	198 037	CIRCUIT CARD, motor control	1
	PLG1	115 092	CONNECTOR & SOCKETS	1
	PLG2	115 093	CONNECTOR & SOCKETS	1
	PLG3	115 094	CONNECTOR & SOCKETS	1
	PLG4	115 091	CONNECTOR & SOCKETS	1
	PLG5	130 203	CONNECTOR & PINS	1
	PLG6	136 810	CONNECTOR & SOCKETS	1

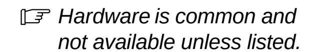
Item No.	Dia. Mkgs.	Part No.	Description	Quantity
Figure 8-2. Control Box (Fig 8-1 Item 14)				
		♦♦173 750	DIGITAL DUAL SCHEDULE, (consisting of)	1
27		134 209	NUT, .250	1
28	LED71	179 203	LED, green	1
	PLG43	115 094	CONNECTOR & SOCKETS	1
	PLG45	115 090	CONNECTOR & PINS	1
	PLG47	131 203	CONNECTOR & PINS	1
	PLG68,74	131 204	CONNECTOR & SOCKETS	2
	PLG72	131 054	CONNECTOR & SOCKETS	1
	R76,77	603 856	POTENTIOMETER, 10/T 2W 10K ohm	2
	S71	150 982	SWITCH, PB MC SPDT 6A 125VAC	1
		153 195	NUT, .250-40	1
		150 981	BUTTON, switch black	1
		097 922	KNOB, pointer	1
			(See Fig 8-3 for additional parts)	1
29		149 657	PANEL, front	1
30		097 922	KNOB, pointer	1
31			NAMEPLATE	1
		120 304	BLANK, .250mtg hole	6
		119 951	BLANK, .437mtg hole	4
		107 983	BLANK, .500mtg hole	2
		000 527	BLANK, .875mtg hole	1

♦Part of Optional 132 137 Spot/Burnback, Preflow/Postflow

♦♦OPTIONAL

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.



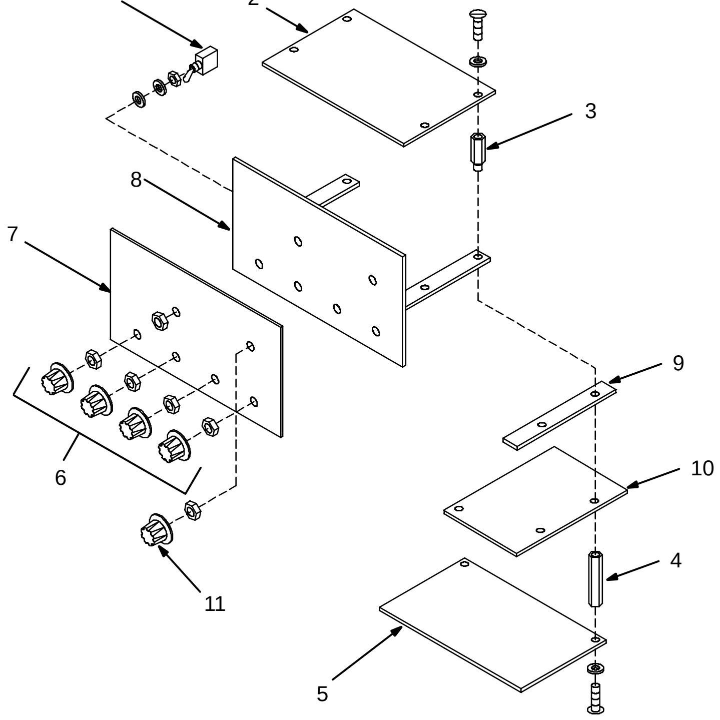


Figure 8-3. Control Panel

Item No.	Dia. Mkgs.	Part No.	Description	Quantity

Figure 8-3. Control Panel (Fig 8-2 Item 7)

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
1	S32	♦011 770	SWITCH, tgl SPDT 6A 125VAC	1
2	PC70	+150 591	CIRCUIT CARD, interface	1
	PLG54,76	+115 093	CONNECTOR & SOCKETS	2
	PLG79	+115 091	CONNECTOR & SOCKETS	1
3		+115 443	STAND-OFF, No. 6-32 x .750 lg	4
	PLG78	++115 094	CONNECTOR & SOCKETS	1
		♦♦132 137	SPOT/BURNBACK, PREFLOW/POSTFLOW, (consisting of)	1
4		126 689	STAND-OFF, No. 6-32 x 1.500	2
5	PC30	188 834	CIRCUIT CARD, 4 in 1 timer	1
6		093 551	KNOB, .125dia shaft w/.125 set screw	4
7		180 650	PLATE, control	1
8		133 344	PANEL, option	1
	PLG11	115 092	CONNECTOR & SOCKETS	1
	PLG35	115 094	CONNECTOR & SOCKETS	1
		134 843	NUT, brs hex .250-40 jam	1
		120 304	BLANK, snap-in nyl .250mtg hole	1
		♦♦194 681	RUN-IN CONTROL (consisting of)	1
		140 789	SWITCH, Reed	1
		079 878	HOUSING	1
		079 535	TERMINAL	4
		079 531	CLAMP	1
7		180 650	PLATE, control	1
8		133 344	PANEL, option	1
9		197 153	SPACER, mtg pc board	1
10	PC80	196 746	CIRCUIT CARD, run-in control	1
11		093 551	KNOB, .125dia shaft w/.125 set screw	1
		120 304	BLANK, snap-in nyl .250mtg hole	5
	PLG71	115 094	CONNECTOR & SOCKETS	1
	PLG76, PLG2	115 093	CONNECTOR & SOCKETS	2
	PLG79	115 091	CONNECTOR & SOCKETS	1
	RC2	131 059	CONNECTOR & SOCKETS	1
	RC70	048 282	RECEPTACLE & SOCKETS	1
7		180 649	PLATE, control	1

♦Part of Optional 132 137 Spot/Burnback, Preflow/Postflow
+Part of Optional 173 750 Digital Dual Schedule
++Not included w/option
♦♦OPTIONAL

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

☞ *Hardware is common and not available unless listed.*

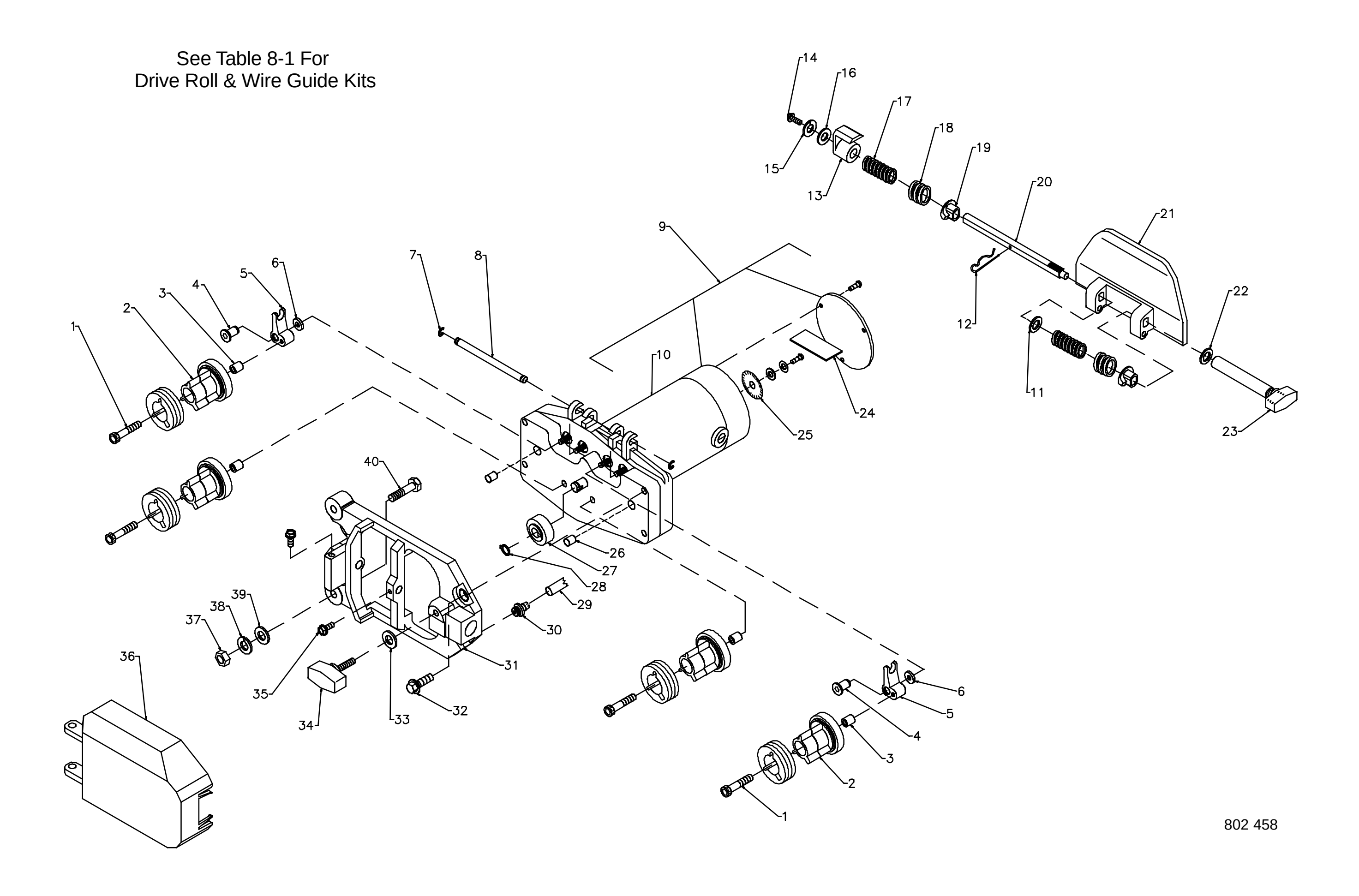


Figure 8-4. Drive Assembly, Wire

Item No.	Dia. Mkgs.	Part No.	Description	Quantity 2 Drive Roll	Quantity 4 Drive Roll
			Figure 8-4. Drive Assembly, Wire (Fig 8-1 Item 23)		
1		010 668	SCREW, cap stl sch .250-20 x 1.500	2	4
2		172 075	CARRIER, drive roll w/components	2	4
3		149 962	SPACER, carrier drive roll	2	4
4		149 486	PIN, rotation arm rocker	1	2
5		132 750	ARM, pressure	1	2
6		150 520	SPACER, flat stl .257 ID x .619 OD x .105	1	2
7		133 493	RING, retaining ext .250 shaft x .025thk	2	2
8		133 350	PIN, hinge	1	1
9	M1	156 354	MOTOR, gear 1/8hp 24VDC 272RPM (consisting of)	1	1
9	M1	♦156 353	MOTOR, gear 1/8hp 24VDC 500RPM (consisting of)	1	1
		153 491	. . KIT, brush replacement (consisting of)	1	1
		153 492	. . . CAP, brush	2	2
		*153 493	. . . BRUSH, carbon	2	2
		184 136	. . KIT, brush holder replacement	1	1
10		155 098	KIT, cover motor gearbox (consisting of)	1	1
		153 550	. . COVER, motor gearbox (consisting of)	1	1
		155 099	. . . GASKET, cover	1	1
		155 100	. . . SCREW, cover	5	5
		154 031	. . SPACER, locating	2	2
		133 493	. . RING, rtng ext .250 shaft grv x .025thk	1	1
11		182 414	WASHER, flat	1	1
12		182 415	PIN, cotter hair	1	1
13		137 248	SPRING, indicator	1	1
14		602 082	SCREW, mach stl rdh 8-32 x .500	1	1
15		602 200	WASHER, lock stl split No. 8	1	1
16		604 772	WASHER, flat stl SAE No. 8	1	1
17		182 156	SPRING, cprsn	2	4
18		182 155	SPRING	1	2
19		132 746	BUSHING, spring	1	2
20		181 522	SHAFT, spring	1	1
21		132 747	CARRIER, shaft	1	1
22		133 739	WASHER, flat buna .375 ID x .625 OD x .062thk	1	1
23		183 330	KNOB, w/extension	1	1
24	PC51	♦♦198 004	CIRCUIT CARD, digital tach (consisting of)	1	1
	PLG57	131 204	. . CONNECTOR & SOCKETS	1	1
		604 311	. . GROMMET, rbr .250 ID x .375mtg hole .062 groove	1	1
	PLG58	131 203	CONNECTOR & PINS	1	1
25		♦♦132 611	OPTICAL ENCODER DISC	1	1
26		167 387	SPACER, locating	2	2
27		168 825	DRIVE, pinion	1	1
28		133 308	RING, retaining ext .375 shaft x .025thk	1	1
29		134 834	HOSE, SAE .187 ID x .410 OD (order by ft)	2ft	2ft
30		149 959	FITTING, brs barbed M 3/16tbg x .312-24	1	1
31		179 265	ADAPTER, gun/feeder	1	1
32		108 940	SCREW, cap stl hexhd .250-20 x .750	4	4
33		604 538	WASHER, flat stl SAE .312	1	1
34		151 437	KNOB, plstc T 1.125 lg x .312-18 x 1.500	1	1
35		151 290	SCREW, mach stl hexwhd 10-32 x .500	2	2
36		179 277	COVER, drive roll (consisting of)	1	1
		178 937	. . LABEL, warning electric shock	1	1
37		601 872	NUT, stl hex full fnsh .375-16	1	1
38		602 213	WASHER, lock stl split .375	1	1
39		602 243	WASHER, flat stl std .375	1	1
40		601 966	SCREW, cap stl hexhd .375-16 x 1.250	1	1

♦Optional High Speed Motor
*Recommended Spare Parts.
♦♦Part of Optional Tach

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

Table 8-1. Drive Roll And Wire Guide Kits

Wire Size		Inlet Guide	Intermediate Guide	V-GROOVE			U-GROOVE			VK-GROOVE			UC-GROOVE		
Fraction	Metric			2 Roll Kit	4 Roll Kit	Drive Roll	2 Roll Kit	4 Roll Kit	Drive Roll	2 Roll Kit	4 Roll Kit	Drive Roll	2 Roll Kit	4 Roll Kit	Drive Roll
.023-.025 in.	0.6 mm	150 993	149 518	151 030	151 024	087 130									
.030 in.	0.8 mm	150 993	149 518	151 031	151 025	053 695									
.035 in.	0.9 mm	150 993	149 518	151 032	151 026	053 700	151 044	151 036	072 000	151 061	151 052	132 958			
.040 in.	1.0 mm	150 993	149 518	161 189	161 190										
.045 in.	1.1/1.2 mm	150 994	149 519	151 033	151 027	053 697	151 045	151 037	053 701	151 062	151 053	132 957	151 077	151 070	083 489
.052 in.	1.3/1.4 mm	150 994	149 519	151 034	151 028	053 698	151 046	151 038	053 702	151 063	151 054	132 956	151 078	151 071	083 490
1/16 in. (.062 in.)	1.6 mm	150 995	149 520	151 035	151 029	053 699	151 047	151 039	053 706	151 064	151 055	132 955	151 079	151 072	053 708
.068-.072 in.	1.8 mm	150 995	149 520							151 065	151 056	132 959			
5/64 in. (.079 in.)	2.0 mm	150 995	149 520				151 048	151 040	053 704	151 066	151 057	132 960	151 080	151 073	053 710
3/32 in. (.094 in.)	2.4 mm	150 996	149 521				151 049	151 041	053 703	151 067	151 058	132 961	151 081	151 074	053 709
7/64 in. (.110 in.)	2.8 mm	150 996	149 521				151 050	151 042	053 705	151 068	151 059	132 962	151 082	151 075	053 711
1/8 in. (.125 in.)	3.2 mm	150 997	149 522				151 051	151 043	053 707	151 069	151 060	132 963	151 083	151 076	053 712

S-0527-C

Each Kit Contains An Inlet Guide, Intermediate Guide, And 045 233 Antiwear Guide w/604 612 Setscrew 8-32 x .125, along with 2 Or 4 Drive Rolls
2 Kits Required for D-62 & D-64



Effective January 1, 2000
(Equipment with a serial number preface of “LA” or newer)

This limited warranty supersedes all previous Miller warranties and is exclusive with no other guarantees or warranties expressed or implied.

Warranty Questions?

Call
1-800-4-A-MILLER
for your local
Miller distributor.

Your distributor also gives you ...

Service
You always get the fast, reliable response you need. Most replacement parts can be in your hands in 24 hours.

Support
Need fast answers to the tough welding questions? Contact your distributor. The expertise of the distributor and Miller is there to help you, every step of the way.



LIMITED WARRANTY – Subject to the terms and conditions below, Miller Electric Mfg. Co., Appleton, Wisconsin, warrants to its original retail purchaser that new Miller equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Miller. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

Within the warranty periods listed below, Miller will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Miller must be notified in writing within thirty (30) days of such defect or failure, at which time Miller will provide instructions on the warranty claim procedures to be followed.

Miller shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the date that the equipment was delivered to the original retail purchaser, or one year after the equipment is sent to a North American distributor or eighteen months after the equipment is sent to an International distributor.

1. 5 Years Parts – 3 Years Labor
   * Original main power rectifiers
   * Inverters (input and output rectifiers only)
2. 3 Years — Parts and Labor
   * Transformer/Rectifier Power Sources
   * Plasma Arc Cutting Power Sources
   * Semi-Automatic and Automatic Wire Feeders
   * Inverter Power Supplies
   * Intellitig
   * Engine Driven Welding Generators
     (NOTE: Engines are warranted separately by the engine manufacturer.)
3. 1 Year — Parts and Labor
   * DS-2 Wire Feeder
   * Motor Driven Guns (w/exception of Spoolmate 185 & Spoolmate 250)
   * Process Controllers
   * Positioners and Controllers
   * Automatic Motion Devices
   * RFCS Foot Controls
   * Induction Heating Power Sources
   * Water Coolant Systems
   * HF Units
   * Grids
   * Maxstar 140
   * Spot Welders
   * Load Banks
   * Miller Cyclomatic Equipment
   * Running Gear/Trailers
   * Plasma Cutting Torches (except APT & SAF Models)
   * Field Options
     (NOTE: Field options are covered under True Blue® for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
4. 6 Months — Batteries
5. 90 Days — Parts
   * MIG Guns/TIG Torches
   * Induction Heating Coils and Blankets
   * APT, ZIPCUT & PLAZCUT Model Plasma Cutting Torches
   * Remote Controls
   * Accessory Kits
   * Replacement Parts (No labor)
   * Spoolmate 185 & Spoolmate 250
   * Canvas Covers

Miller's True Blue® Limited Warranty shall not apply to:

1. **Consumable components; such as contact tips, cutting nozzles, contactors, brushes, slip rings, relays or parts that fail due to normal wear.**
2. Items furnished by Miller, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
3. Equipment that has been modified by any party other than Miller, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

MILLER PRODUCTS ARE INTENDED FOR PURCHASE AND USE BY COMMERCIAL/INDUSTRIAL USERS AND PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT.

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at Miller's option: (1) repair; or (2) replacement; or, where authorized in writing by Miller in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized Miller service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer's risk and expense. Miller's option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at a Miller authorized service facility as determined by Miller. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed.

TO THE EXTENT PERMITTED BY LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL MILLER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY.

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Owner's Record

Please complete and retain with your personal records.

Model Name	Serial/Style Number
Purchase Date	(Date which equipment was delivered to original customer.)
Distributor	
Address	
City	
State	Zip



For Service

Call 1-800-4-A-Miller or see our website at www.MillerWelds.com to locate a DISTRIBUTOR or SERVICE AGENCY near you.

Always provide Model Name and Serial/Style Number.

Contact your Distributor for:	Welding Supplies and Consumables Options and Accessories Personal Safety Equipment Service and Repair Replacement Parts Training (Schools, Videos, Books) Technical Manuals (Servicing Information and Parts) Circuit Diagrams Welding Process Handbooks
Contact the Delivering Carrier for: For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department.	File a claim for loss or damage during shipment.

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